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Gender and networks in project teams: the case of a troubled insurance and asset management company

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GENDER AND NETWORKS IN PROJECT TEAMS:

THE CASE OF A TROUBLED INSURANCE

AND ASSET MANAGEMENT COMPANY

by

Vernon Anthony Woodley

<u>An Abstract</u>

Of a thesis submitted in partial fulfillment
of the requirements for the Doctor of Philosophy degree
in Sociology in
the Graduate College of
The University of Iowa

December 2012

Thesis Supervisor: Associate Professor Anthony Paik

ABSTRACT

Advocates of self-managed teams, a common strategy for organizing work, suggest that teams may be a solution to gender inequality in the workplace. According to this argument, the nonteam-structured workplace is typically stratified by gender with women occupying the lower stratum of the hierarchy. Women's formal and informal interactions are therefore limited to mostly other women in similar low-status positions. This gendered pattern of interaction is said to negatively affect women's career opportunities and outcomes because women's positions prevent them from accessing and mobilizing good social capital – benefits from ties to influential persons within the organization. Self-managing teams that cross-cut workplace positions and subunits provide access to good social capital, thus enhancing women's work outcomes. I tested this argument with data from a case study of employees in the asset management subdivision of a multinational insurance and asset management company dubbed Finco Asset Management. In general, the results confirm the benefits of participation in self-managing teams. First, in Chapter 3 I found that workgroups, the nonteam structure at Finco, were more likely to be segregated by gender than self-managing project teams. In Chapter 4, I found that workplace position, workgroup and the perceived importance of another for one's career advancement determined the informal structure at Finco. Tie importance attenuated the effect of joint project team participation, which suggests that employees were strategic about forming ties with influential persons in project teams. In Chapter 5, I found that the informal structure, particularly indegree centrality and outdegree centrality, were key predictors of promotion and pay increase. Indegree centrality alone determined layoffs, however. Thus consistent with the social capital

argument, self-managing project teams reduced gender segregation, provided access to important informal networks and the informal networks influenced employee work outcomes. However, gender mattered as well. Women were more likely to share workgroups and less likely to be in upper management. Women were also less likely to have same-sex informal networks within their subdivision after accounting for tie importance; however, they were more likely to have same-sex ties in other subdivisions. Women also reported lower job commitment and saw fewer opportunities for mobility at Finco in comparison to men. Hence, while participation in cross-cutting, self-managing teams does improve women's work outcomes, gender differences persist in positions and attitudes.

Abstract Approved: _____
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CERTIFICATE OF APPROVAL

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PH.D THESIS
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This is to certify that the Ph. D. thesis of

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has been approved by the Examining Committee
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To my wife Asha and my son Bryan,
thank you for your patience and understanding
during those long days and nights I spent working
toward this day.

To Brian (Sr.) and my mother Pearline,
thank you for your encouragement and guidance that
led to this day.

To my advisor Professor Paik,
thank you for your patience and valuable lessons learned.

To the management and employees of "Finco,"
thank you, without you this study would not
have been possible.

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INTRODUCTION

Initially implemented as a response to international competition in the manufacturing sector in the 1980s, self-managing teams have become an important strategy for organizing work in many of America's workplaces. Self-managing teams, subgroups of employees who jointly direct their work, are a part of a larger class of employee involvement practices that allow nonmanagement employees input into how their work is done on a day-to-day basis. Recent estimates indicate that nearly half of all for-profit work organizations, from the local grocer and restaurant to automotive giants and the crème de la crème of Wall Street financiers, use teams to get work done. Scholars studying public and non-profit organizations find even higher rates of team use in these sectors. But, what does participation in self-managed teams imply for the men and women who comprise them? How does organizing workers into self-managing teams affect their earnings, promotion opportunities, involuntary turnovers, and attitudes towards their work?

The above questions underscore the focus of this research. Specifically, this research is concerned with uncovering what it is about teams that bring about a change, if any, in the work outcomes of men and women. To this end, I applied arguments from social network theory of social capital to data from the asset management subsidiary of a multinational insurance and asset management company which organized some workers into self-managing project teams. The social capital approach suggests that individuals may be able to "access and mobilize resources embedded in social structure" to improve their circumstances (Lin 2001, p.29). At the time of the study, the company was coping with the aftermath of the 2008 global

stock market crash and the continued "great recession." These external factors led to

substantial internal organizational restructuring, including mergers, consolidation and

layoffs. Since only some workers participated in self-managing teams, this study is

not only fitting for examining the effect of team participation on men and women's

work outcomes relative to nonteam-structured work; it is also timely. In other words,

the economic turmoil of 2008 and 2009 presents a unique opportunity to test whether

persons who participate in self-managed teams fare better than those who do not. Do

self-managed teams provide members with enhanced social capital resources that

other workplace structures do not? I examine these questions and others in the

chapters that follow.

The Case for Self-Managed Teams

From the perspective of employers using self-managing teams, employee

involvement often equals enhanced productivity; that is, factors such as flexible

assignments and having a personal stake in one's work are likely to result in increased

productivity.   Indeed, optimism over self-managing teams has even infected

organizations that have no formal team structure such that being a "team player" is

arguable a virtue in corporate America. Subareas concerned solely with employee

ownership and employee involvement has even sprung up in the management and

behavioral sciences. However, much of the team player optimism is centered on how

team work improves organization performance, not employees work outcomes.

From the perspective of scholars who attribute gender inequality in the

workplace to organization structures, the use of self-managing teams is a possible

solution to a long history of female and minority underrepresentation in upper

management. One argument is that teams bring together employees who may have otherwise had little or no contact with each other (Acker 1990, 1992, 2006; Ferguson 1984; Heckscher 1988; Smith-Doerr 2004; Strober 1984). Hence in the case of women who may be employed in low-status, gender-segregated jobs, team participation provides enhanced *visibility* and *access* to influential persons and resources. The major assumptions here, however, are that teams will draw employees from different jobs and positions within the organization, and once brought together, those employees will interact favorably. The argument also takes for granted that gender inequality is a function of workplace structure. This means that if we observe gender differences in work outcomes net of human capital, typically education, work experience and tenure, those gender differences would more or less disappear when we include measures of workplace structure such as an individual's function, position and ties to others in an organization. The theoretical implication is that it is not the attribute gender, but the person's place in the organization that produces unequal work outcomes. The use of self-managing teams in work organizations is not without detractors, however.

The Case against Self-Managed Teams

Some scholars contend that teams may, at minimum, have no effect or potentially exacerbate the problems faced by women and minorities in advancing their careers for several reasons. First, because the chain of reporting and accountability is thought to be less clearly defined in self-managing teams, some scholars suggest that the team structure erodes some of the formal protections that employees have in traditional, nonteam-structured organizations and exposes them to

idiosyncratic management (Barker 1993, 1999; Baron et al 2007; Berggren 1993; Graham 1998; Kunda 1992; Perrow 1986; Reskin and McBrier 2000). These scholars advocate increased formalization of organization policies and practices to ensure the protection of low-ranking employees.

Another perspective out of the social psychology literature argues that prevailing cultural beliefs, which view women as less competent than men, reproduce inequality structures in teams similar to those found in traditional, nonteam-structured organizations (Carli 1989; Falbo et al. 1982; Ridgeway 1997; Ridgeway and Correll 2004; Tilly 1998; Wiley and Eslikson 1982; for review see Ridgeway and Smith-Lovin 1999). Hence unlike the proteams argument that sees workplace gender inequality as a function of organization structure, this perspective sees gender as the source of unequal work outcomes for men and women. This means that gender differences would persist even after controlling for workplace structure.

Finally, some neoinstitutionalists suggest that teams are mostly ceremonial - rich in rhetoric, but void of substance in actual implementation and practice (DiMaggio and Powell 1983; Zbaracki 1998; Vallas 2003a, 2003b). This means that teams may have little or no impact on men and women work outcomes because the use of teams is superficial, which does nothing to change the actual structure and practices of the organizations that use them.

Why Sociologists Should Take Notice

Despite the popularity of self-managing teams, not all scholars agree that the use of teams will improve the career trajectories of women and minorities. Still, the gradual but steady increase in the use of teams suggests that teams are more than just

a passing fad.[1] As such, the use of teams is likely to affect not only how employees are compensated for their work, but the advancement opportunities available to them as well.   Further, since career advancement is often associated with future earnings and personal wealth, teams may have implications for social stratification more generally. Yet, the relationship between gender, team participation and employee work outcomes has not been fully explored.

The proteams argument above suggests two ways in which women and minorities may benefit from the use of self-managed teams: increased visibility and access to more influential social networks. Yet, few scholars have examined social networks in self-managing teams (but see Fernandez 1991; McGuire 2002; Reagans and Zuckerman 2001; Reagans et al. 2004; van de Bunt et al. 2005). Indeed, many scholars do study intraorganizational networks, but few have actually studied networks in organizations that employ self-managed teams. It is not surprising that some scholars call for research of networks ties in organizations that use different types of strategies for organizing work (Podolny and Barron 1997; Strauss 2006). Also, most studies of teams in organizations tend to be concerned with organization productivity as the primary dependent variable. One exception is a recent program of research that describes specific networking strategies that men and women use to advance their careers (Benschop 2009; Forret and Dougherty 2004). However, these studies are descriptive accounts of a few individual managers' personal experiences. Less attention has gone into analyzing team network structure and its relationship to employee work outcomes.

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[1] One notable exception is Strauss (2006) who argues that teams and other employee involvement practices are indeed a fad that is currently on the decline.

This research expands our knowledge of the connection between team participation and men's and women's work outcomes. To determine how team participation could be translated into a benefit for women, I divided the primary research question, how team participation affects employees work outcomes and attitudes, into three related empirical questions. Because the proteams argument assumes less gender segregation in self-managed, which allows for enhanced visibility and access, I begin by testing the gender segregation assumption. (1) Is there less gender segregation in team-structured work than in nonteam-structured work? (2) How do differences in team-structured and nonteam-structured affect men and women's informal social networks? (3) How do men and women's informal social networks affect their work outcomes? To answer these questions, I used survey data from employees in the Midwestern investments department of a multinational insurance company. In addition, I used participant observation of work teams and in-depth interviews with managers and randomly selected nonmanagement employees to complement and enrich the findings of the quantitative data analysis.

Chapter one presents an overview of the extant literature, including an in-depth, review of the dominant theories used to explain workplace inequality. Chapter two describes the research site, population and methods of investigation. In Chapter 3, I examine question 1 above, the effects of gender on workplace positions, self-managing project teams and nonteam structures. Chapter 4 examines question 2, the effects of gender, teams and nonteam structures on men and women's social networks. The final chapter, Chapter 5 examines question 3, the effect of gender, formal and informal structures on men and women's work outcomes. I conclude with

a discussion of the primary findings and the implications of this research for women in the workplace.

CHAPTER I

LITERATURE REVIEW & THEORY

<u>The Changing American Workplace</u>

Work organizations have undergone significant structural transformations during the last three decades. The hierarchical system of management that once characterized many of America's workplaces continues to be supplanted by leaner organizations with flat hierarchies, task-specific, contingent workers and increased employee involvement, particularly the use of self-managed teams (Appelbaum and Batt 1994; Appelbaum et al. 2000; Boxall and Macky 2009; Osterman 2000, 2006; Vallas 2003b). Many scholars today view organizations as consisting of a "plethora of organizational configurations that fail to conform to traditional definitions of markets and hierarchies" (Podolny and Page 1998, p.57; Powell 1990).[2] However, there is much disagreement over what these newer organizational forms imply for the men and women who work in companies that use them. Nonetheless, some scholars strongly argue that changes in work organization will fundamentally alter the relationship between managers and workers (Boyett and Conn 1992; Boyett and Boyett 1995; Heckscher 1988; Leicht and Fennel 2001).

This chapter presents an overview of the extant literature on work transformation and the impact on the employees, paying particular attention to organizations use of self-managing teams and employee involvement more generally. First I trace the history of work transformation from the early scientific management approach to the more recent employee involvement strategies. Next, I discuss the key findings from studies of self-managing teams, the corresponding explanations and limitations. I conclude with a

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[2] Some scholars question whether alternative forms of organizations are indeed more prevalent today than in previous years (Clawson 1980; Granovetter 1995; Laumann 1991).

discussion of network theory of social capital and competing theoretical approaches for predicting and explaining the effects of work transformation on employees.

From Scientific Management to Employee Involvement:

The History of Work Transformation

Employees' involvement in the actual day-to-day running of an organization is a far cry from Taylor's highly prescriptive management model that dominated much of the twentieth century. Yet, despite gaining increased traction in recent years, employee involvement practices are not entirely new. Earlier, Mayo's human relations approach encouraged interaction between managers and employees (Mayo 1949). Trist and colleagues sociotechnical systems shifted emphasis away from manager-employee relations to self-managing teams (Trist et al. 1963, 1977). Later, Lawler and colleagues at the University of Southern California Center for Effective Organizations conducted some of the earliest rigorous studies on the diffusion and effectiveness of employee involvement practices in Fortune 1000 companies during the 1980s and early 1990s. Since then, researchers from various disciplines have carried out numerous laboratory, survey and field studies on employee involvement and outcomes at both the organization and individual levels. What then does employee involvement entail and what can past studies tell us about the effect on organizations and their employees?

Defining Employee Involvement and Self-Managing Teams

Numerous terms exists in the academic literature to denote employee involvement practices. In the management and organizations literature, scholars use power phrases such as high performance work systems (HPWS), high performance work organization (HPWO) and high involvement work systems (HIWS) to communicate the supposedly

superior productive quality of employee involvement practices. In contrast, sociologists emphasize employee benefits and outcomes through the use of terms such as employee participation practices, flexible work arrangements, employee empowerment practices and employee involvement. Regardless of the term, employee involvement generally refers to a set of practices that companies use to give nonmanagerial employees some degree of input or control over their work.

Cotton (1993) defines employee involvement as "the participative process to use the entire capacity of workers, designed to encourage employee commitment to organizational success" (p.13). These practices generally assume that "by involving workers, by having them participate in decision making, by making the workplace more democratic, and by empowering employees, certain outcomes (eg. attitudes and productivity) may improve" (Cotton 1993, p.12). Specific practices may include, but are not limited to, group decision-making, problem solving groups, quality circles, job rotation, profit-sharing and employee ownership, employee consultation and the use of self-managing teams (Appelbaum and Batt 1994, Ramsay et al. 2000). Companies may adopt any individual practice or combination of practices, but among the most widely adopted is the use of self-managing teams.

Self-managing teams are a specific type of employee involvement practice in which subgroups of workers are charged with organizing and managing the day-to-day details of their work. Teams may comprise persons from different jobs and areas of expertise within a department, and may even come from different departments within a firm. Some teams set goals for themselves, schedule tasks, evaluate the performance of other team members, and may even hire new team members (Wellins, Byham and Wilson

1991), but variation exists. Some studies show that team members have relatively little control over how their work is done (Taplin 1995; Smith 1997) and benefits of teams to employees vary by industry (Osterman 2006). Also, teams vary in size, form and frequency of contact. Some teams have formal team leaders, while others do not. Kalev (2009) identified two types of team structures, problem-solving and self-directed teams, but those may best be conceived as ideal types, since firms may adopt hybrid and alternate configurations of team structure (Vallas 2006).

The Emergence of Self-Management Teams

Early research showed a rapid increase in the adoption of self-managing teams. For instance, the use of self- managing teams in Fortune 1000 companies increased from fewer than one dozen companies to roughly eight percent of Fortune 1000 companies between 1980 and 1990 (Cotton 1993; Lawler 1989). Faced with increasing competition from Japanese manufacturers, iconic manufacturing companies such as General Motors, Chrysler and General Electric were among the first to adopt teams and other employee involvement practices in the United States as strategies for reducing cost and increasing profits (Appelbaum and Batt 1994; Appelbaum et al. 2000). Despite little research confirming the success of employee involvement practices at that time, other companies were quick to follow since many believed that foreign competitors' use of these practices gave them a competitive edge for innovation and increased productivity.

Self-managing teams and other employee involvement practices have since spilled over into the nonmanufacturing sector. Today, a sizable minority of work organizations in the United States, manufacturing and nonmanufacturing, use some form of employee involvement practices. One is readily aware of the omnipresence of teams

in the retail and service sector as many department stores, grocery stores and fast food chains have effectively changed their employee name badges from "employee" to "team member." Or, customer service requests over the Walmart and Target public announcement system usually ask team member "Joe" or "Mary" to report to the requested location. But does team member mean the same thing at Walmart or McDonalds as it does in a research and development company? Recent estimates suggest that close to half of all for-profit (Osterman 2000, Kalev 2009), and more than half of nonprofit and public organizations utilize teams (Kalleberg et al. 2006) to varying degrees. Yet, some evidence suggests that teams may have different effects in the service sector than in the manufacturing sector (Batt 2001; Bryson et al. 2005; Osterman 2006). What, then, do these changes mean for the firms that adopt them and the employees who work for those firms?

Research on Employee Involvement in the Workplace

Early research on employee involvement centered on the productive capacity of teams and other employee involvement practices for the organization. Some scholars found that firms realized increased productivity when they adopted combinations or bundles of employee involvement practices (Ichinowski et al. 1997; Appelbaum et al. 2000). In one of the few service sector studies, Bartel (2004) found that employee involvement was associated with increase productivity in the banking industry. Also, the observed increase in productivity was shown to be associated with increased skill, but it is unclear whether employees became more skilled from increased involvement, or whether firms selectively recruit employees with higher skills to work in teams (Boxall and Macky 2009). However, Reagans and colleagues (2004) did show that the mode of

team formation is important for team performance. Specifically, teams that were structured around employees' informal networks were more productive that those that relied solely on demographic traits to increase diversity in work groups. Critics, however, see limited real gain from utilizing teams and other employee involvement practices (Cappelli and Newman 2001; Way 2002). Yet despite some dissent, scholars generally find positive associations between the use of teams and performance at the firm level. There is much less agreement, however, on whether employees actually benefit from the use of teams and other employee involvement practices.

<div align="center">**Teams and Employee Outcomes**</div>

Few scholars have studied the effect of employee involvement practices on employees in the firms that use them, and of those who have, the results have been mixed. Researchers in management and organizations generally use survey data to examine increase in remuneration, employee discretion or autonomy, and cognitive and emotional measures of employee well-being. Appelbaum et al. (2000) studied employees from steel, apparel and medical equipment manufacturing plants, and found that found the workers in steel and apparel organizations that used high performance work systems earned higher wages, and that there was increased trust between managers and employees in those companies. Similarly, Hunter and Lafkas (2003) found that teams were associated with increased pay for bank customer service employees. In an earlier study, Capelli (1996) used the 1994 cross-section of the National Employers Survey (NES) – a nationally representative sample of private for-profit firms that employed more than twenty workers – and found a modest increase in wages for employees in self-managed teams. Also, in a study of employee turnover and morale, Vandenberg et al. (1999)

found that employees had lower rates of turnover and higher morale in firms that used teams and other involvement practices. Similarly, Mackie et al. (2001) found that American health workers reported lower levels of depression when they were allowed greater involvement in their work. Most recently, Macky and Boxall (2008) found that employee involvement was associated with greater job satisfaction provided that employees also experienced greater job autonomy and rewards.

The above positive employee outcomes, however, are tempered by other conflicting evidence. Specifically, Appelbaum et al. (2000) found no increase in pay for workers at the medical equipment plant in their study, and while the Hunter and Lafkas (2003) study showed increase pay, employees did not report increased worker discretion. In addition, employees in Macky and Boxall's (2008) study reported negative emotions when increased involvement was not coupled with increased pay and other tangible rewards. Further, there is some indication that employee involvement practices may work differently in the manufacturing sector than in the service and professional sectors. In a study of only manufacturing industries Osterman (2006) found a positive association between employee involvement and pay, but in an earlier study of both manufacturing and nonmanufacturing industries, Osterman (2002) found no association between employee involvement and pay. Also, the positive relationship between employee involvement and pay disappeared when Osterman (2006) reanalyzed the data using only nonmanufacturing firms.

Other studies did not report any statistically significant relationship between teams and worker outcomes or the effects were attenuated by other factors. For example, Handel and Gittleman (2004) did not find any significant association between employee

involvement and employee rewards using nationally representative data of nonagricultural firms that hire more than fifty employees. Similarly, Batt (2001) found no significant relationship between self-managed teams and wages after introducing statistical controls. Handel and Gittleman (2004) do note that nonsignificant findings in theirs and other's studies of employee involvement could result from the lag between implementation of the practices and the observed outcomes. This is especially important since most studies of employment involvement lack data on the timing of implementation.

Nationally representative longitudinal studies, however, provide no clear answers either. In a follow up to the 1996 study, Capelli and Neumark (2001) used longitudinal data from the NES study and found that team-training, but not the use of self-managed teams was associated with modest positive employee benefits. Also, in a test of the bundling hypothesis – the assertion that it is bundles of employee involvement practices, not specific practices that matter, they found no statistically significant association between bundled practices and work outcomes. A similar study using the NES data found that the relationship between self-managed teams and wages depended on the presence of a labor union at the firm (Black, Lynch and Krivelyova 2004). In other words, employees in teams earned more when the employees had organized bargaining power, not simply because the firm organized workers in teams.

These conflicting results paint a murky picture of the impact of teams and other involvement practices on workers in the firms that use them. On the one hand, workers appear to earn higher wages when firms adopt employee involvement practices and firms seem to experience limited performance increases. On the other hand, wage increases

seem to vary widely by sector and industry. Also, firm performance and employee benefits seem to depend on factors beyond simply instituting teams and other employee involvement practices. Nontheless, Capelli and Neumark (2001) finding that team-training but not teams was associated with employee rewards begs curiosity if nothing else. McDuffy (1995) suggests that team-training may indicate how seriously a firm implements team practices. Thus, it is possible that crude measures such as whether firms adopt teams are inadequate to capture variance in adoption and implementation of employee involvement practices. Teams, then, appear to be complex and dynamic systems that have yet to be fully investigated. Indeed, Vallas (2003a, 2003b, 2006) seems to suggest just that. In his ethnographic studies of teams in paper mills, Vallas (2003a, 2003b) found that team systems were rife with tensions and contradictions as both managers and employees struggled to reconcile formal organization policies, managerial practices and employee expectations. These tensions and contradictions, Vallas (2006) contends are normative behaviors in teams rather than an occasional peculiarity as some scholars suggest. For example, Vallas (2003b) found limited support for the hegemony hypothesis that managers use team norms to get workers to buy into the managers' view of work, which resulted in the intensification of work for employees. At the same time, workers also resisted managerial control, especially when they felt that they were not realizing the full degree of autonomy and benefits that formal policies suggested they would. Vallas (2006) argues that these inherent contradictions served to weaken managerial control and increase worker solidarity which, he claims, has the potential to bolster workers' bargaining power. Acker's (1994) study of Swedish banks is also partly consistent with Vallas' argument in that Acker observed weakened

managerial control in low and middle management, but managerial control remained unchanged higher up in the banks.

The above studies highlight several concerns for employees in companies that use self-managed teams, but more important for this study is the lack of attention to the impact of teams on men and women respectively. Past research tells us that men and women often have different experiences in the workplace. However, the bulk of past research on men and women in work organizations has not focused on employees in organizations that use self-managed teams. Hence, knowledge of how women fare relative to men in firms that use teams is currently lacking. At the same time, the use of teams in the workplace is sufficiently widespread to potentially exacerbate or improve the widely documented income gap between men and women (Acker 2006; Smith-Doerr 2004; Stainback and Tomaskovic-Devey 2009; Tomaskovic-Devey 1993). How then do men's and women's work outcomes compare in organizations that employ self-managed teams? To address this issue, I turn the sociological and organization demography literature on gender and the workplace.

Gender in a Changing Work Environment

A large body of research documents gender inequality in American workplaces (see Acker 2006; Reskin and Padavic 2002 for a review). Past research has found that women are often segregated in lower paying, less rewarding jobs than white men (Acker 1990, 2006; Bielby and Baron 1984; Kanter 1977; Reskin and McBrier 2000; Tomaskovic-Devey 1993). Undoubtedly, women made some gains in leadership, but mostly in mid-level service sector management where they often manage other women or minorities (Stainback and Tomaskovic-Devey 2009). In fact, while the United States

Department of Labor recently reported that women held roughly fifty percent of all management and professional positions in work organizations in 2010, the majority of those positions were concentrated in low to mid-level management (U.S. Bureau of Labor Statistics 2011).

Several studies have found that women and minorities receive lower economic return for education and work experience, all else being equal (Beck et al. 1978; Tomaskovic-Devey 1993). Even when they had similar jobs, education and experience women earned less, and were less likely to be in upper management than white men (Castilla 2008; Ferree and Martin 1995; Scott 2000). Some scholars contend that the pace at which women move into upper management is incongruent with their increasing gains in education and work experience (Castilla 2008; Smith 2005). Further, the few women who do make it to the top of an organization often have difficulty gaining full recognition as legitimate figures of authority (Burt 1998; Ridgeway 1988).

Because of the challenges women face in reaching top management, some scholars contend that the traditional merit-based system is ill-equipped to usher women into leadership positions in work organizations (Castilla 2008; Smith 2005). In fact, some scholars attribute women's conspicuous absence from top management to the actual structure of work organizations (Acker 1990; Kanter 1977; Ferguson 1984; Smith-Doerr 2004). These scholars argue that women experience blocked mobility in work organizations because organizational structures and practices confine women to low-status positions that present limited or no opportunities for organizational leadership. Acker (2006) refers to these delimiting structures and practices as *inequality regimes* – "interrelated practices, processes, actions and meaning that result in and maintain class,

gender and racial inequalities" (p. 443). She identified steep hierarchies, those typically characteristic of bureaucracies, as a primary source of inequality since there are inherent marked differences in authority, work practices and rewards between persons at the top and those at the lower end of the hierarchies. Building on Kanter's (1977) *homosocial reproduction* concept, Acker contends that women, more often than men, are hired into low-ranking and support roles where they have limited opportunities for recognition and rewards. Further, hierarchies legitimate inequality regimes in organizations by the mere fact that ranked positions are believed to warrant differential rewards, regardless of the nature of the work involved. Subsequently, steep hierarchies create *glass ceilings* – structural barriers that restrict women's advancement to top leadership positions.

Self-managed teams, because of their general association with flat hierarchies and cross-cutting social ties, are said to have the potential for circumnavigating the glass ceiling and facilitate women's advancement to top leadership positions. Importantly, however, flat hierarchies are not assumed to be egalitarian structures, just more permeable than steep hierarchies that are assumed to be static and mostly impenetrable (Acker 2006; Smith-Doerr 2004). In fact, Acker (2006) asserts that all organizations are gendered organizations. Still, for Acker and other scholars who view the hierarchical bureaucratic model as a primary source of gender inequality, flexible structures such as teams and other employee involvement strategies are attractive alternatives. But, what do we really know about women in organizations that employ self-managing teams?

Research on Women and Men in Self-Managing Teams

Research on women in organizations that use self-managing teams has been scant and the limited empirical evidence tells a complex story. Acker's (1994) study of

Swedish banks showed that employees in the bank branch that implemented employee involvement practices had smaller status differentiation and were generally more cooperative than those that did not. However, the nonmanagement employees in that branch were mostly women lead by a male manager whom they perceived as collegial. Further, the positions that women occupied – tellers and clerks – were generally considered female jobs that offered limited opportunities for promotion, and offered little incentive for cross-gender competition. It is therefore difficult to disentangle which effects resulted from the use of employee involvement practices alone, or factors such as biases in hiring and lack of competitive opportunities. Acker (1994) did acknowledge that the banks studied were generally patriarchal institutions, and jobs were mostly sex-typed. In addition, most male managers resisted implementing employee involvement practices.

Another study compared female engineers in firms with steep hierarchies to females in firms with what they referred to as dynamic network structures, that is, firms characterized by flat hierarchies and employee involvement practices (Kvande and Rasmussen 1994). The authors interviewed pairs of male and female managers in six Norwegian engineering firms and surveyed female members of the Norwegian Engineering Society in addition to other female academics. They found that women were more likely to be in supervisory positions in firms with dynamic networks than those with steep hierarchies. However, Kvande and Rasmussen (1994) reported that only a particular kind of woman, whom they labeled *challengers*, usually attained supervisory roles in network organizations. What is unique about challengers according to the authors is that they were women who acted "more like men in their attitude to work"

(p.172-173). Hence, according to these authors, while women did move up in dynamic network organizations, the women who did were unlike most other women in their attitudes and general presentation of the self.

Similarly, Smith-Doerr (2004) compared the career paths of recent life sciences PhDs in academic work with those in biotechnology firms to determine if women in bureaucratic organizations (universities) had similar supervisory opportunities to those in more flexible organizations (biotech firms).   She found that women were eight times more likely to have supervisory positions in biotech firms compared to women in universities. Smith-Doerr (2004) concluded that women had greater opportunities for advancement in firms that used teams and other employee involvement practices than in firms that had steep hierarchies. Smith-Doerr's (2004) study is limited, however, by the fact that most of the persons in the sample had only recently received their PhDs. Considering that the time to supervisory roles in universities and biotech firms may differ significantly, and the career histories of new PhDs are quite short, these findings may not adequately reflect the careers of more senior men and women in these organizations. Smith-Doerr also pointed out that her study does not account for the presence of more senior men and women in the organizations whose status and mentorship may also influence the career trajectories of the new scientists.

Other case studies reveal a less clear picture of men and women in teams. For example, in her study of employees at an office equipment and copying service company, Smith (1996) found that both male and females workers reported increased job intensification and insufficient pay. However, workers perceived their work in self-managed teams as meaningful and important for career building. Both male and female

workers spoke of using the skills they acquired in teams to eventually start businesses of their own or to obtain better positions in the firm. One woman interviewed spoke of becoming "voiced and visible" in her work team; another talked of acquiring skills to read other's body language. In another study of teams in an engineering firm, Daday and Burris (2001) found that women generally had more positive perception of teams than men, despite occupying lower-ranking positions within the firm. Specifically, female administrative assistants who worked on cross-functional teams reported feeling empowered by their work in teams and respected by their team members, all the while aware of their low-ranking positions within the firms. Hence, be it post hoc rationalization or genuine sentiment, women appear to reap some intrinsic rewards from work in self-managed teams even when they fail to obtain tangible rewards in the form of increased pay and promotions.

Still, other studies reported less flattering findings about men and women's experiences in teams. Barker (1993) gave one of the most stern critiques of self-managed teams based on his ethnography of employees in a small telecommunications manufacturing company. While gender was not the primary focus of Barker's study, the implications for women in teams are evident. According to Barker (1993) self-managing teams exhibited a type of *concertive control* that is "more powerful, less apparent, and more difficult to resist than that of the former bureaucracy" (p.408). Team members in Barker's study were not simply employees as in the older management system; they were owners of their work, accountable to the team, and they were rewarded and punished as such. Team members reported feeling like their coworkers were their families whom they did not want to disappoint by not contributing equally to the success of the team.

Indeed, because of the early start to their work day and many hours of overtime work, some team members reported spending more time with their teams than with their own families. Women, particularly single mothers, were especially vulnerable as they tried to balance their work and home lives. In one account, a single mother was reduced to tears after been chastised by her team for being late after staying at home to take care of a sick child. Teams also developed formal rules, akin to those of the bureaucracy they replaced, which served to intensify workers experience in the workplace. Hence, the increased flexibility and autonomy attributed to the use of self-managed teams was not observed in Barker's (1993) study. As a unit, teams enjoyed greater autonomy from company management, but team members' scrutiny of each other appeared to have intensified organizational control over the employees.

Another case study of men and women in teams suggests that team members use family metaphors to sustain gender categorization and restrict women from assuming instrumental roles within the teams (Ollilanen and Calasanti 2007). These researches observed four teams across three companies and conducted in-depth interviews with all thirty-nine team members. Companies represented included a bank, a health insurance company and a small manufacturer. All teams were mixed gender, but the manufacturing team composition favored men and the bank team favored women. The team from the insurance company was more or less evenly mixed. According to Ollilanen and Calasanti (2007) women, often older and more experienced than male team members, assumed the role of mother who nurtured and mentored the young men. Through the use of the mother role, women were able to gain influence over the young men without disturbing the gender hierarchy. Indeed, some male team members reported that the women "spoil

you, it's fun" (p.16). However, not all women saw the preferential treatment of young males as fun. One female team member remarked that "even though we have the team concept, … they're (the men) sort of pampered and babied along the way" (p.15). This employee also suggested that the males were "given more attention … to help them reach that goal than a female" (p.15). Hence, the interaction between males and female team members appeared to have been mutually beneficial in that males were mentored and readied for leadership roles and females were able to exert some influence and authority over the males as mothers do. However, the role of mothers did little to facilitate the women's move into higher positions within the firms as they were simply doing what is culturally expected of women and mothers.

These case studies of men and women in teams provide rich accounts of how interactions unfold in mixed gender teams and further illustrate the complexity of team structures for the employees who work in them. However, they are also limited by the fact that they are merely descriptive accounts of the behaviors of a few individuals in each organization. As such, they lack the ability to disentangle the effects of specific factors and processes that may produce particular outcomes in teams, while controlling for other known organizational factors. To my knowledge only one study, to date, has examined career outcomes of men and women in self-managed teams in a wide cross-section of firms using rigorous multivariate techniques.

Kalev (2009) analyzed longitudinal data on workforce composition submitted to the Equal Employment Opportunity Commission (EEOC) by over eight hundred American companies. In addition, Kalev and colleagues selected a random sample of companies from the EEOC sample and conducted interviews with human resources

managers in the firms that agreed to be interviewed from those selected. In support of the

of the pro-teams argument, Kalev (2009) found that when women and minorities were

allowed to train and work in teams that involved cross-functional collaboration, they

were more likely to be in supervisory positions.   However, women and minorities did not

benefit from being in problem-solving teams or general job training programs that did not

cross-cut work boundaries. Kalev (2009) distinguished self-managing teams from

problem-solving teams because the problem-solving teams tended to comprise persons

who were already considered experts in their fields. The major shortcoming of Kalev's

(2009) study is that it consists only of managers reports of work place composition and

employee outcomes. No interviews or surveys were administered to nonmanagement

employees in any of the firms studied, thus the results may not adequately reflect the

employees actual experiences.

In sum, the research on women in firms that use self-managing teams tells us that

women may experience an increased sense of satisfaction and empowerment from

working in teams, but feelings of empowerment may only occasionally be accompanied

by increased pay and upward mobility. Also, some teams may closely scrutinize team

members, which could reduce personal autonomy and increase job intensification.

Additionally, we are confronted with research which shows that women do better in

bureaucratic organizations where rules and processes are formalized and implemented

from the top-down. For example, using a representative sample of work organizations,

Reskin and McBrier (2000) found that women fared better when hiring was done through

open recruitment than through informal networks. This research led Reskin and her

colleagues to call for the formalization of all organizations practices, rather than allow the

type of fuzziness and discretionary practices that occur in teams. Similarly, in a recent study of high-technology companies in the Silicon Valley, Baron et al. (2007) found that women had better employment opportunities when organization practices were bureaucratized. Subsequently, the available empirical evidence provides no clear answer as to whether women benefit from working in firms that use teams. Still this is not entirely surprising since the key mechanisms, enhanced visibility and access, which the proteams argument suggests should lead to better work outcomes for women have not actually been tested.

Enhanced visibility and access imply that there is something about the relative position of women who participate in teams that gives them an advantage over those who do not, but no study to date, has analyzed the structure of men's and women's networks in organizations that use self-managing teams. Further, the existing research on men and women in teams has either distinguished team-structured firms from nonteam-structured firms (Acker 1994; Kalev 2009; Kvande and Rasmussen 1994; Smith-Doerr 2004), or focused only on team participants within the same firm (Barker 1993; Daday and Burris 2001; Smith 1996; Ollilanen and Calasanti 2007). The former distinction is susceptible to firm effects since the mode of team formation (Boxall and Macky 2009; Reagans et al. 2004) and the degree of implementation (Handel and Gittleman 2004; McDuffy 1995) may vary at the level of the firm. The latter is unable to distinguish team participants from nonteam participants. Thus in neither case are we able to isolate the true effect of team participation. By focusing on the structure and effects of ties among team and nonteam members within the same firm, this study is able to determine whether team participants do indeed have different work outcomes from nonteam participants, while

avoiding the pitfalls of firm effects. To my knowledge, this study is the first of its kind to actually test the effects of self-managing teams on employee work outcomes. To specify how team participation may facilitate better work outcomes for women, I turn to the social network literature on work organizations

Gender, Networks and Employee Work Outcomes

The proteams argument above stresses the potentially equalizing effect of teams by allowing women greater visibility and access, but research on the structure and effects of ties in teams and nonteam settings is currently lacking (Podolny and Baron 1997). We do not know if women who participate in teams are indeed more visible or have greater access to persons of influence than those who do not participate in teams. Also, if team participation does make women more visible, does enhanced visibility and access necessarily translate into better work outcomes?

Acker (2006) suggested that the "minimal and occasional … success" of teams (p.127), may be a result of "gendered substructure(s)," artifacts of informal interactions and practices that remain intact even after restructuring (p.128).   Hence, two important features of work organizations appear to facilitate or impede gender equality in the workplace. First, the manner in which work is organized, the *formal structure* which includes employees' positions and tasks, may influence how often and with whom one has contact.   Second, the nonwork-related relationships that emerge, the *informal structure*, may affect each person's ability to mobilize the benefits of contact which may affect employees' work outcomes. This is consistent with an earlier view of organizations as comprising "groups …defined both by their formal (task-related,

functional) and informal connections and differentiations" whose "relative number and power … shape the nature of the organization" (Kanter 1975, p.63).

Fernandez (1991) comparative study of employees in three companies with different types of organizational structures supports the view that different formal structures produce different work outcomes. Fernandez (1991) studied employees in "hierarchical," "professional" and "participatory" organizations and found that the structure of the workplace is important for respect relationships – the recognition and acceptance of someone as a leader in the workplace. Friendships ties were associated with leadership respect in participatory and professional work organizations, but not in hierarchical organizations. Only reporting ties predicted leadership respect in hierarchical organizations. This study is important for two reasons. First, it reaffirms the view that the structure of ties in the workplace matters. Second, by showing that friendship ties are important in participatory and professional organizations, the types of organizations that are generally associated with self-managing teams, it bolsters the proteams argument that teams may provide women with access to resources they might not have otherwise. However, Fernandez (1991) did not look at how social networks affect men and women differently. Teams may bring men and women together in the same space, but mere sporadic support for the expected benefits of team participation suggests that simply organizing workers into teams may not be sufficient to improve women's work outcomes. Different formal structures may lead to different outcomes, but that does not mean that men and women would benefit equally from the formal structures that are in place. To determine whether men and women receive similar benefits from

self-managed teams it is necessary to compare men and women networks in team and nonteam structures.

The Power of Ties: Network Theory of Social Capital

Almost four hundred years ago, Thomas Hobbes emphasized the relational dimension of power when he asserted that "to have friends is power: for they are strengths united" (Hobbes [1651] 2006 p.54). Hobbes further suggested that not only might we gain an advantage from having ties to others, but our social value is also derived from those around us. "For let a man (as most men do) rate themselves at the highest value they can; yet their true value is no more than it is esteemed by others (Hobbes 1651 p.55). This early work highlights the importance of individuals' social relationships for the behaviors, attitudes and other outcomes, a view which ultimately underscores both the social network perspective and the proteams argument that workplace structures affect employees' work outcomes.

The social network perspective begins with the assertion that individuals (actors) are embedded in networks – webs of stable, interconnected relationships (Brass et al. 2004; Kilduff and Tsai 2003). Networks can be "position-centered" or "person-centered" (Podolny and Baron 1997). Position-centered networks are linkages among formally assigned tasks and positions such as those depicted in organizations workflow charts. Person-centered networks, however, generally correspond to some measure of affinity between pairs of actors. In other words, position centered (formal) networks are assigned networks, but person-centered (informal) networks are usually based on choice. Employees may not be able to choose their supervisors or coworkers, but they can usually choose their friends and "golf buddies." However, formal networks may

facilitate or impede one employee's opportunity to build informal networks with another to the extent that positions and workflows allow employees to interact (Borgatti and Cross 2003; Schrader, Lincoln and Hoffman 1989; Podolny and Baron 1997). From the proteams perspective, having the opportunity to interact is an important first step to building informal networks.

Networks are important because they provide actors opportunities and resources to which they might not otherwise have access. Resources can be material and nonmaterial including information, support, advice, referrals, mentorship, and recommendations for jobs and promotions, positive work evaluations, bonuses and other rewards (Burt 1992, 2005; Lin 2001). Informal networks may allow individuals opportunities to bypass formal channels to more readily achieve their desired goals (Burt 1992, 2005). For example, a junior employee who helps a senior manager improve his golf swing on weekends may learn about an upcoming promotion or a new job opening before the position is officially advertised. The senior manager may also "put in a word" with the hiring manager on that employee's behalf which could, at minimum, give the employee an opportunity to be seriously considered for the position. The employee in this scenario benefited from early access to valuable information and a recommendation, simply because of his/her nonwork relationship with the senior manager. These work-related benefits which stem from the employee-manager nonwork relationship, could be conceived of as a type of *good* or *capital*, distinct from his/her job skills, education and work experience[3].

The Concept of Social Capital

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[3] Indeed, rumors of this employee's "mean golf swing" may have given the senior manager the desire to seek him out in the first place, but his golf skills are not pertinent to the job at hand.

Social network researchers refer to goods derived from relationship as *social capital* (Bourdieu 1985; Burt 1992; Coleman 1988; Lin 1982, 2001). Definitions of social capital vary within and across disciplines, and often depend on whether it is treated as a predictor or an outcome variable[4]. Adler and Kwon (2002) identified twenty distinct definitions of social capital across discipline, not including their own definition. Within the social network domain, definitions include "the aggregate of the actual or potential resources which are linked to a durable network …" (Bourdieu 1985,p.248), "friends, colleagues, and more general contacts through whom you receive opportunities …" (Burt 1992, p.9), "the ability of actors to secure benefits by virtue of membership in social networks …" (Portes 1998, p.6), and "resources embedded in social structure that are accessed and mobilized in purposive action" (Lin 2001, p.29). Despite variations in language, these scholars all identified social capital as resources distinct from human capital – a person's education, skills and experience, which resides in one's interpersonal relationships, and can be used for personal gain.

Because social capital is said to come from social relationships it may simultaneously advantage some persons and disadvantage others (Portes 1998; Portes and Landolt 1996). Empirical research has linked social capital to various work outcomes. Scholars have found that social capital is important for finding jobs (Granovetter 1973; Fernandez et. al 2000; Lin and Dumin 1996; Parks-Yancy et. al 2006), for workplace mobility (Beckman and Phillips 2005; Burt 1992, 1998; Podolny and Baron 1997), and compensation (Belliveau, O'Reilly and Wade 1996; Burt 1997). Social capital can even affect a person's educational achievements (Coleman 1988; Parks-Yancy et al. 2006).

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[4] Some scholars question the appropriateness of the use of the economic term capital for to this social phenomenon (Baron and Hannan 1994; Schmid 2000, 2002; Smith and Kulynych 2002), but most agree that networks do provide access to useful resources.

Persons who are not well-connected or those who are tied to others in low-status positions benefit less from the use of social capital (Portes 1998; Portes and Landolt 1996; Silvey and Elmhirst 2003). Hence, the usefulness of social capital depends not only on one's position in the organization, but the positions of those to whom one is connected as well.

Teams as Good Social Capital

Recall that the proteams argument is based on four important claims: (1) organizations are segregated by gender; (2) men are in positions of power; (3) by cross-cutting functional areas and workflows, self-managed project teams allow women increased visibility and greater access to positions of power; (4) improved access and visibility are likely to reduce gender inequality in work outcomes. This argument is consistent with the social network research on social capital. Particularly in cases where team participation is selective, that is, only some employees have the opportunity to participate in teams as in this study. Teams and nonteam structures, then, constitute different types of formal structures through which members can obtain social capital. Access corresponds to group composition, specifically gender composition since this study centers on gender inequality and men are generally assumed to be in more positions of power. Visibility corresponds to a person's relative position within a given group, such that members at the center of the group are likely to have higher visibility than those on the periphery.

Importantly, if teams do increase access and visibility, then the social capital obtained through project teams is likely to be better than the social capital obtained through nonteam structures. Further, project team members may have informal ties based

on both formal structures: networks based on linkages in nonteam structures (hereafter supervised workgroups) and networks based on self-managing project teams. For example, studies have found that employees were more likely to have informal ties when they worked in closer proximity to each other (Borgatti and Cross 2003; Schrader, Lincoln and Hoffman 1989). Hence to the extent that supervised workgroups are segregated by gender, persons from segregated workgroups, who also participate in teams, may have informal ties to not only members of their homogenous workgroup members, but to a more diverse group of men and women in their teams as well.

In sum, the proteams argument suggests that gender may usher men and women into different positions and workgroups which may hinder women's workplace opportunities. However, women who are allowed to participate in self-managing project teams that cross-cut positions and workgroups, may gain access to additional social capital resources such as greater informal access to influential men, and increased visibility within the workplace. These added social capital resources are likely to have a positive impact on women' work outcomes, thereby reducing gender inequality in the workplace. Still, recall that Acker (2006) and Smith-Doerr (2004) asserted that team structures are likely to be more permeable than more rigid hierarchical structures (in this case workgroups), but not necessarily egalitarian. This means that team participation may reduce gender inequality, but it does not guarantee the absence of all gender inequality. Hence, the causal ordering is as follows. First, gender will influence the formal structure of work, particularly workplace positions and workgroups. However, because project teams are drawn from different workgroups and positions, gender, positions and workgroups will determine project teams. Second, the formal structures

will subsequently determine the informal structure – the source of social capital.

Alternately, gender will determine the informal structure independent of the formal

structure. Third, social capital derived from the informal structure will influence men

and women's work outcomes. However, the formal structures may also directly

influence men and women's work outcomes, net of the informal structure. Alternately,

gender will influence men and women's work outcomes independent of the formal and

informal structures. These associations are depicted in Figure 1. The unbroken lines

illustrate the primary proteams social capital argument and the broken lines show

secondary and competing associations.
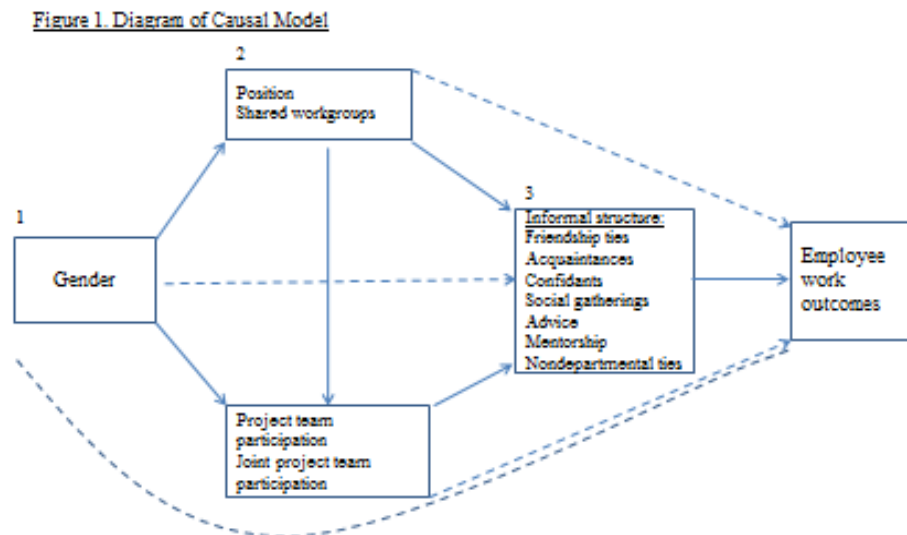
Figure 1. Diagram of the Causal Model

Gender Segregation in the Workplace

Gender in the Formal Structure

The studies reviewed earlier found that few women were likely to be in positions of power (Acker 1990, 2006; Bielby and Baron 1984; Durr and Logan 1997; Kanter 1977; Reskin and McBrier 2000; Tomaskovic-Devey 1993). Hence, the theorized benefits of team participation should not completely overshadow Acker's (2006) assertion that all organizations are gendered organizations. Scholars have found gender differences in hiring (Acker 1990, Fernandez and Fernandez-Mateo 2006; Kanter 1977), promotions (Burt 1998; Castilla 2008) and job functions (Acker 1991; Charles and Grusky 2004; Tomaskovic-Devey 1992). Even studies that reported some benefits of self-managed teams did not report gender equality. For example, Acker's (1994) study which showed smaller status differentiation among bank teller and clerks acknowledged that the managers were mostly men. Also, Kalev's (2009) study showed that only one type of team, teams with cross-cutting ties, ushered women into supervisory roles.

Further, much of the debate over workplace gender inequality is not about whether it exists, but why it exists. In this regard, the social psychology literature which sees cultural perception of men and women as the source of workplace inequality (Carli 1989; Falbo et al. 1982; Ridgeway 1997; Ridgeway and Correll 2004; Tilly 1998; Wiley and Eslikson 1982) also lends credence to the view that, more often than not, we will find gender differences in workplace structures. This is likely to be even more pronounced in organizations where team participation is selective, since nonteam participants may lack access to team-based social capital. Therefore, one would expect to find gender differences in the formal workplace structures, particularly among persons who are not

selected to participate in teams and therefore lack all access to team-based social capital. At the same time, if the proteams argument is correct, project teams should draw participants from different positions and workgroups, thereby given both women and men similar opportunities to participate in project teams. Subsequently, there should no gender segregation in project teams.

>   *Hypothesis 1a. Workgroups will be segregated by gender and men will be more likely to occupy upper management positions than women.*
>
>   *Hypothesis 1b. Women and men will be equally likely to participate in project teams, and positions and workgroups will explain project team structure, not gender.*

Gender in the Informal Structure

Formal structures may constrain employee interactions, but that does not tell us why employees form informal relationships with some persons with whom they have formal contact, but not others. While it is important for employees to have some form of contact to build informal ties, not all employees who work together develop informal ties. Contact may be an essential ingredient, but it is not sufficient for tie formation. Some scholars suggest that homophily, a widely researched view that people generally prefer to associate with others who share similar characteristics (Blau 1977; Homans 1958; Lazarsfeld and Merton 1954; McPherson and Smith-Lovin 1987; McPherson, Smith-Lovin, Cook 2001), may determine informal networks. In other words, women's and men's preferences for same-sex interactions may be the cause of gender differences in informal networks. This has important implications for the proteams argument. If informal networks result from preferences rather than structural factors, then bringing

men and women together in self-managing teams may have little or no effect on their informal networks, and their respective work outcomes. However, research suggests that gender homophily likely reflects structural barriers rather than personal preferences (McPherson and Smith-Lovin 1987). For example, McPherson and Smith-Lovin (1987) found that group composition largely determined the gender composition of friendship ties in voluntary organizations, not preference for one gender over another. Similarly, Moore's (1990) study of men's and women's social networks in both their home and work lives found that while women and men had mostly same-sex networks, the gender difference was explained by structural factors, specifically, employment and family structure.

Still, other studies appear to favor the preference rather than structural homophily argument. For example, Chatman and O'Reilly (2004) found that women were more committed to and reported more positive affect for same-sex groups and men favored groups that were dominated by men. Similarly, Tsui and O'Reilly (1989) found that superiors rated the performance of same-sex subordinates higher than that of subordinates in mixed-gender pairs. Subordinates in same-sex pairs were also viewed as more likeable than subordinates in mixed-gender pairs. Other studies found that female employees received more support from coworkers of the same sex than they did from their male colleagues (McGuire 2002; South et al.1982). Hence, there appears to be at least some socioemotional benefits for forging same-sex ties. Indeed, Krackhardt (1992) suggested that women may have a greater need for the benefits of strong ties such as trust and comfort (p.218). Yet, if mixed-gender ties present opportunities for career advancement,

does the instrumental benefit (career advancement) outweigh the socioemotional benefits?

Some scholars suggest that women may forge both types of ties, but for different purposes. Early research suggested that women may form homophilous ties for emotional support and mixed-gender ties for status, rewards and other instrumental purposes (Lipman-Blumen 1980). Lipman-Blumen (1980) also suggested that men may obtain both emotional and instrumental resources from ties to other men. Similarly, Ibarra (1992) found that women nominated more women in their communication and support networks, but more men in their influence and advice networks. Men, however, nominated more men in both their support and instrumental networks, but more women in their support networks than they did in their instrumental networks.

In a later study, Ibarra (1997) found that high-potential female managers had wider ranging networks than all other middle managers, but they also had more homophilous ties than the women not classified as high-potential managers. Male managers had more homophilous networks than their female counterparts. Consistent with the proteams argument, these findings show that even if women do have a preference for same-sex ties, they will forge mixed-gender ties when given the opportunity to do so if those ties provide instrumental benefits. Hence, women are assumed to be strategic in forming ties, a trait that is more often attributed to men. This runs counter to the preference argument that gender segregation results from women's need for emotional resources from relationships with other women (Downey and Lahey 1988; Krackhardt 1992; Riger and Galligan 1980). It appears that women are motivated by both socioemotional and instrumental factors, and that instrumental factors may be

more salient when advancement opportunities are higher in mixed-gender groups than they are in same-sex female groups.

Still, women may reach out to men, but that does not guarantee that men will reciprocate. For example, Silvey and Elmhurst's (2003) analysis of several case studies on migrant workers in Indonesia found that women had less social capital because they were excluded from the men's social networks. Brass (1985) also found that few women were able to access the influential majority male coalition. Burt (1992, 1998) suggested that women were excluded from male groups, not because of their gender, but because they suffered from a lack of legitimacy as organizational leaders. Similarly, Lin (1982) asserted that women's history of occupying low-status positions had somewhat led to a devaluation of women. From this perspective, reluctance on the part of men to forge mixed-gender ties is less about gender and more about the status of women in the workplace.

However, men may benefit from ties to women as well. If we conceive of mixed-gender groups as boundary spanning groups, that is groups that bring otherwise segregated persons together, then it is likely than men may benefit from access to nonredundant information from having ties to women's networks. Empirical studies have found that men benefit from building bridges between networks that were not previously connected (Burt 1992, 1997; Podolny and Baron 1997). Hence, it may be in the interest of both men and women to build informal ties when they come together in teams, as the proteams argument suggests. Indeed, Cross and Lin's (2008) finding of no gender differences in male and female networks may suggest that this is already occurring. They asserted that the absence of gender differences in their study was an indication that

women are making progress in forging mix-gender ties, the perception of ties to women as risky investments have changed in recent years, or both.

Taken together, the above studies suggest three factors that may determine the informal structure: structural constraints, strategy and preference. First, people form relationships with those they have access to, such as persons in similar positions, workgroups and project teams. Second, people strategically form ties for instrumental purposes such as promotions, pay increases and protection from involuntary turnover. Third, people prefer to form ties with others who are similar to them including persons of the same gender. The structural constraint and strategy are both consistent with the proteams argument. Specifically, gender segregated work is a structural constraint; whether women want to are not, they are unlikely to have ties to powerful men since they simple do not have access to them in workgroups. The argument that men are in positions of power and that women will form ties with those men in power, given the opportunity, is consistent with strategy. This means that even if women prefer same-sex ties, they will take advantage of opportunities for advancement regardless of the sex of the other. Thus, the importance of a particular relationship for ego's career would determine the informal structure. As an alternative to the proteams argument, preference suggests that changes in structure would have little or no impact on tie formation. Women will form ties with other women, whether they have access to men in project teams or not. I posit competing hypotheses for the impact of gender and the formal structure on the informal structure.

Hypothesis 2a. Employees who occupy similar position, or who share workgroups and project teams will more likely have informal ties than those who do not share to similar workplace structures.

Hypothesis 2b. Employees will more likely form ties with persons whom they perceive as important for advancing their careers.

Hypothesis 2c. Employees will more likely form informal ties with others of the same sex, than they will with persons of a different sex.

Do Similar Networks Provide Similar Rewards?

Project team participation may enhance women's social networks, but does this network extension necessarily result in lower likelihoods of involuntary turnover, increase in pay, promotion and positive attitudes towards one's work? Prior research has found that women and men may not benefit equally from having similar human capital such as education and work experience, (Beck et al. 1978; Castilla 2008; Ferree and Martin 1995; Scott 2000; Tomaskovic-Devey 1993), and the case studies reviewed earlier found only limited gains for women in self-managing teams (Smith 1996; Ollilanen and Calasanti 2007). The same may be true for social capital. Women who participate in teams may indeed form ties with their male team members, but see little or no real gain in their actual work outcomes. Hence, this section examines research on the relationship between the informal structure and men's and women's work outcomes.

Some scholars have found that employees benefit from having heterophilous ties and being centrally positioned in informal networks. For example, Granovetter's (1973) study showed that being loosely connected to a diverse group of alters leads to better employment than having many close ties to persons with similar networks. Boxman et

al's (1991) study of almost fourteen hundred Dutch managers found that external contacts were more important for income and promotions than education and experience. Also, Podolny and Baron (1997) found that sparse, boundary spanning information networks were important for workplace mobility. With regard to centrality, Leavitt's (1951) early study of centrality and leadership found that central actors in centralized networks were more likely to be chosen as leaders than peripheral actors. Brass (1984, 1985) found that degree, closeness and betweenness centrality in communication and friendship networks were associated with power and distance to the dominant coalition. Brass (1985) also found that central actors were more likely to be promoted within a three year period. Similarly Mehra, Kilduff and Brass (2001) found that central actors were likely to be evaluated more favorable by their supervisors, and Kilduff and Krackhardt (1994) found that persons who were perceived as having powerful friends were also likely to be evaluated favorably. However, with the exception of Brass (1985), these studies did not focus on gender differences and none focused on self-managing teams.

Ray Reagans and his colleagues were the only group of scholars who studied work outcomes in self-managing teams in a study of research and development teams. They found that homophily was associated with cohesion and heterophily was associated with range, both of which enhanced firm performance. On the one hand, having teams with diverse functions increased network range, which improved overall group performance. On the other hand, homogeneity increased group cohesion which also improved performance (Reagans et al. 2004; Reagans and McEvily 2003). In other words, teams performed well when comprised of diverse members because they were able to draw from a wider pool of resources. At the same time, having team members

from similar functions allowed for stronger ties between team members, which also led to better performance. Reagans and his colleagues concluded that both cohesion and range were important for group performance; the key was for groups to strike the right balance. Still, Reagans and colleagues did not study gender differences in networks, nor did they study work outcomes at the individual level.

The few studies that examined how women's informal networks affected their work outcomes did not compare men and women in self-managing teams. Specifically, in the follow-up portion of his newspaper firm study, Brass (1985) found that seven out of ten promotions went to men. Importantly, however, the few women who were integrated into the male networks and the mostly male dominant coalition were rated as more influential by their supervisors and were promoted before women in all-female workgroups. Also, central females in both same-gender and mixed-gender networks were more likely to be promoted before women on the periphery. Hence, Brass's (1985) study suggests positive effects of women having mixed-gender networks and being centrally positioned within their networks.

Burt (1992) also found that women benefited from ties to men. Where Burt expected *network constraint* – a measure of tie redundancy (Burt 1992, p.5) to be associated with lower opportunities for promotion, he found that women were more likely to be promoted the higher their constraint index was. In contrast, men with lower network constraint were more likely to be promoted which was consistent with Burt's initial expectation for both male and females. Burt (1992) suggested that women were not trusted in organizations inner circles; even if they had ties to men, they did gain the same social capital resources that men did. In a follow-up study, Burt (1998) observed

similar results. Women and men reported similar networks, but constraint was positively related to promotion for women and negative for men. Only network hierarchy explained differences in promotion for women. Burt (1998) suggested that women needed to have ties to senior males who could vouch on their behalf for them to access social capital embedded in organizational inner circles. In other words, women needed to borrow social capital from their male counterparts to improve their promotion opportunities. However, Burt contended that it was women's low social status, not gender, which prevented them from building social capital. Also, Cross and Lin's (2008) finding that there were no gender differences in social capital or men's and women's work outcomes, could be interpreted as both women and men had access to and benefited equally from the use of social capital.

Despite a lack of emphasis on team-structured organizations, these studies generally support the view that women benefit from having ties to powerful men. Hence, to the extent that the formal structure determines the informal structure, high visibility (centrality) in the informal structure will determine men and women's work outcomes. However, because the formal structure is also independent of men's and women's egocentric networks, the formal structure may have direct effects on men's and women's work outcomes as well. Alternatively competing theoretical approaches suggest a direct effect of gender on men's and women's work outcomes. For example, expectation states theory (Berger et al. 1974; Berger et al. 1977; Berger & Zelditch 1998) from social psychology asserts that different cultural expectations for men and women are what lead to different interaction strategies and outcomes in organizations (Carli 1989; Falbo, Hazon and Linimon 1982; Ridgeway 1988, 2001; Ridgeway and Correll 2004; Wiley and

Eslikson 1982).   Specifically, men are generally considered to be more competent than

women, except when the task is said to demand female expertise such as childcare

(Ridgeway 1988; Wagner & Berger 1997). Consequently, men are evaluated more

positively and rewarded more favorable than women. The implication here then, is that

even if women did build similar networks as men, they will receive lower returns on

social capital than men would. Indeed, McGuire's (2002) study which showed that

women received lower instrumental support even after controlling for informal networks

seems to support this view. Hence, I posit the competing hypotheses.

> *Hypothesis 3a. High centrality in the informal structure will reduce layoffs, and*
>
> *increase promotions and pay increases.*
>
> *Hypothesis 3b. Project team participation will reduce involuntary turnovers, and*
>
> *increase promotions and pay increase, but low-status positions will be associated*
>
> *with increased involuntary turnover and decreased likelihood of promotion and*
>
> *pay increase.*
>
> *Hypothesis 3c. Women will be more likely to be laid-off, and less likely to receive*
>
> *promotions and pay increases.*

To summarize, competing arguments suggest different outcomes for the use of

self-managing teams in work organizations. On the one hand, teams are thought to

breakdown structural barriers that restrict women's mobility in firms that use them. On

the other hand, teams are said to produce the same inequality structures others suggest

they will do away with or at least reduce. This study employs network data of men and

women in an organization that uses self-managing to test the proteams argument. In the

next chapter, I discuss the research design, data and specific analyses that I employ to

tests these competing hypotheses. Below, I include a list of the hypotheses to be tested

by the corresponding chapters.

Summary of Hypotheses by Chapter

Chapter 3 Hypotheses

Hypothesis 1a. Workgroups will be segregated by gender and men will occupy more upper management positions than women.

Hypothesis 1b. Women and men will be equally likely to participate in project teams, and positions and workgroups will explain project team structure, not gender.

Chapter 4 Hypotheses

Hypothesis 2a. Employees who occupy similar position, or who share workgroups and project teams will more likely have informal ties than those who do not share to similar workplace structures.

Hypothesis 2b.Employees will more likely form ties with persons whom they perceive as important for advancing their careers.

Hypothesis 2c. Employees will more likely form informal ties with others of the same sex, than they will with persons of a different sex.

Chapter 5 Hypotheses

Hypothesis 3a. Increases in social capital will be negatively associated with involuntary turnovers, and positively associated with promotions and pay increase.

Hypothesis 3b. Project team participation will reduce involuntary turnovers, and increase promotions and pay increase, but low-status positions will increase the likelihood of involuntary turnover and reduce the likelihood of promotions and pay increases.

Hypothesis 3c. Women will be more likely to be laid-off, and less likely to receive promotions and pay increases.

CHAPTER II

METHOD OF RESEARCH

To test the whether women benefit from participation in self-managing teams, I conducted a study of employees in the Midwestern asset management subsidiary of a Global Fortune 500 insurance and asset management company, which traded publicly on the New York Stock Exchange (NYSE). To protect the identity of the company and its employees, I refer to this company as Finco Asset Management or simply Finco. The study consisted of three parts. Part one consisted of a two-panel survey first administered between January and February, 2009 with a follow-up in July 2009. Part two of the study, six months of team observation, commenced during the last week of January 2009 and was completed on July 15, 2009. The final part of the study consisted of semi-structured interviews with twenty-nine employees, including all four senior managers within the division between June and July 2009. I also obtained supplemental data from the senior vice-president in 2010 following the period of restructuring. This data included updates additional layoffs, promotions and pay increases and was merged with the follow-up survey data.

<u>The Research Site</u>

At the time of the study, Finco employed roughly 30,000 people in twenty countries. Operations within the United States and Western Europe accounted for about two-thirds of the company's total assets, which exceeded 400 billion U.S. dollars and American investors comprised roughly half of the company's total shareholders. The company was governed by three corporate bodies: shareholders, an executive board and a supervisory board. Both the executive and supervisory boards were elected by the

shareholders. The executive board was charged with the management and operations of the company, while the supervisory board oversaw the activities of the executive board. All national subsidiaries of the parent company operated as autonomous units to meet the unique needs of their national markets; however, the parent company provided oversight with regards to risk and asset management.

The United States location which is the focus of this study consisted of six major divisions, employing more than three thousand persons, about one quarter of all company employees in the United States[5]. Each of the six major divisions was headed by an executive vice-president who reported to the CEO of North American operations. The executive vice-presidents were supported by senior vice-presidents, who oversaw subdivisions comprised of multiple departments and each department was headed by a vice president who reported to the senior vice presidents.   Vice presidents, senior vice presidents and executive vice presents were all recognized as company executives which meant that they were permitted to act as official representatives of the company. While there was some corporate oversight, each subdivision operated more or less autonomously such that decisions about hiring, promotions and layoffs were generally made by vice presidents and senior vice presidents, unless the person being hired or let go was a company executive[6].

This study was conducted in the investment operations and accounting subdivision also known as the back office. The back office along with two other

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[5] Recent restructuring, including employee layoffs, has led to the consolidation of some divisions and the creation of new, leaner divisions.

[6] The corporate office decides when and how people are laid off, but the decision about who gets laid off is usually made by the vice presidents in consultation with the senior vice presidents of each department.

subdivisions, financial reporting and trading, comprised the asset management division[7].

At the start of this study, the employee roster for Finco Asset Management reported one

hundred thirty-eight fulltime employees, but this was about to change as a result of

Finco's aggressive strategy to avert insolvency in the down economy.[8] Employees were

divided into three departments, each headed by a vice-president, and specialized in

different financial products and services.

Why Finco Asset Management?

Finco Asset Management was aptly suited for this study for several reasons. First,

Finco met the primary criteria, that is, the company utilized cross-functional self-

managed project teams, the focus of this study. However, the fact team participation was

selective made Finco ideal for isolating the effects of self-managing project teams versus

other organizational structures within the same company, thus reducing concerns of firm

effects that commonly affect multi-firm studies. Next, the location studied was Finco's

North American corporate office, a crucial hub of operations within the company. While

back office operations carry somewhat lower prestige than front office trading operations,

the importance of the corporate office within the company made this location attractive to

employees because of their potential access to the executive ranks. Finally, Finco Asset

Management was a part of the financial services sector -- professional work involving the

management of many sophisticated financial products, which required substantial

education and training, and a departure from most previous studies of self-managing

teams that focused on the manufacturing sector.

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[7] At the time of this study, the asset management division had begun the process of becoming an independently registered company within Finco group of companies. This process was completed in at the end of 2009. Today Finco investment management is a limited liability company headed by a chief operating officer, who was the former senior vice-president of investment operations and accounting.
[8] This number did not include contract workers, interns and other temporary employees.

Turmoil in the global financial services sector at the time of the study elevates Finco Asset Management's importance as well. We are granted a bird's- eye view into how a struggling company's efforts to survive affect groups of employees differently. Because of exposure to toxic mortgage-backed securities during the 2008 housing crisis, Finco, like most other companies in the financial services sector, suffered substantial losses. For example, in the third-quarter of 2008 alone, Finco lost nearly five hundred million United States dollars. At the start of data collection in 2009, Finco's stock value had plummeted almost eighty percent from its 2007 high, prompting a multibillion dollar bailout by the foreign government of the country where Finco was headquartered. As a part of the government bailout, Finco had to find ways of cutting cost. Finco's board of directors and company executives set a goal to reduce operating cost by roughly two hundred million dollars in 2009. Cost-cutting strategies included closing several locations within the United States and Europe and consolidating operations at the corporate office. Finco also entered into a merger with a smaller financial company that was also in danger of insolvency. These restructuring strategies ultimately led to layoffs and other major changes at the corporate office, many of which started taking effect during the course of this study.

This study of Finco Investment Management operations also has broader social implications. The financial services sector plays a substantial role in the distribution and appropriation of wealth (Zorn et al. 2005). Aside from the recent financial downturn, the financial services sector has been a growing sector of the economy, and the number of women working or studying in finance related fields has increased as well. For example, in 2007, roughly 43 percent of all employees in finance-related services were women.

Also, women's share of business and finance PhDs increased from 28 percent in 1992 to 42 percent in 2007, a relative increase of fifty percent (U.S. Census Bureau Statistical Abstract 2009). At the same time, women remain virtually absent at the top of financial services companies. If cross-functional teams do help women advance, this could be an important step toward narrowing the gender gap in wealth and executive representation.

Study Overview:

Access, Recruitment and Design

I first contacted the senior vice president of investment operations by e-mail about one year prior to the start of data collection. In the e-mail, I expressed my interest in studying team dynamics within the department. The senior vice president responded with cautious curiosity and requested a meeting via telephone. After several telephone conversations, I sent a copy of my dissertation proposal to the senior vice president, which was followed by a first face-to-face meeting about two weeks later. During the meeting, the senior vice president emphasized the need to protect company secrets, and inquired about the potential benefits of the study for the company. We discussed the plans to protect the identity of the company and the employees. I also informed the senior vice president that there may not be any direct benefit to the firm, but that the study could provide valuable insight into how patterns of behaviors within teams affected work outcomes. We also agreed that a written summary of the results of the study, minus employee identifying information, would be provided to management upon completion of the study.

Following our initial meeting, the senior vice president referred the study to the department of human resources and legal counsel. Upon the request of the legal counsel,

I submitted a draft of the confidentiality agreement outlining plans to protect the company and the employee's identities. I also submitted a copy of the survey that was to be administered. After the legal counsel revisions to the confidentiality agreement and minor suggestions from the human resource department about the survey, a joint meeting was scheduled with the senior vice president, the human resource manager and two representatives of the legal counsel. Roughly five months after our initial contact, I was informed by the senior vice president that he had accepted a new position in a different division, but he would work with human resources and legal counsel to obtain approval for the study prior to his departure. About one month later approval was granted and we arranged a meeting to sign the necessary documents. I was also assigned a new contact person within the unit, but I could not proceed with data collection until the new senior vice president had assumed leadership of the subdivision. After, the new senior vice president was appointed, the contact person scheduled meetings between myself and the senior vice president. I also met with the vice presidents of each department to work out the details of how the study would proceed.

Participant Recruitment Strategy

Because the study involved team observation, survey and interviews respondents, I used multiple recruitment strategies. First, I was provided with a list of twenty-two projects among ten project team leaders – six women and four men. I then e-mailed the team leaders an executive summary of the proposed study and a brief biographical sketch of myself inviting them to participate in the study. The e-mail invitation was shortly followed by an appearance at the monthly department meeting where I gave a ten minute presentation about the proposed study, the advantages and potential risks of participation.

I encouraged team leaders to discuss participation with their teams because general team consent was required to proceed and I encouraged individuals who were not in the teams selected for observation to complete the survey once it was made available. All ten team leaders and their assigned teams consented to the study, but only seven team leaders and eleven projects were observed due to company cost-cutting. I also obtained team composition data on five additional teams that were close to completing their projects. One week prior to the start of the study, I made a second appearance at the general meeting to encourage participation, especially in the survey. I informed employees that they would receive an e-mail with a direct link to the online survey. Two days before the survey was made available, I sent a test e-mail with a reminder that the survey should be available shortly. The e-mail with access to the survey with sent on January 26, 2009. I also visited the first teams being observed during that week. The survey was set to be open for two weeks, but I extended it for a third week due an initially low response rate. During weeks two and three, I sent out reminder e-mails, and was able to boost the overall response rate to over sixty percent of the department roster.

Survey Overview

When employees opened the internet link in their e-mail to complete the survey, they were brought to an introductory page on *WebSurveyor* – a secure web-based program used to administer the survey. The introductory page consisted of a brief paragraph which informed employees that they were about to participate in survey that was a part of my dissertation research, the purpose of which was to understand how teams affect employee work outcomes. The introduction also informed the employees that their participation was completely voluntary and confidential; therefore, knowledge

of their participation would not be made available to anyone other than me. They were encouraged to answer all questions as accurately as they could, but they were also informed that they could terminate participation at any time and for any reason.

The baseline survey was organized into three sections, each with multiple subcategories. Section one included questions about personal biography, education and work experience. Respondents were asked about their gender, age, race and ethnicity and whether they were born in the United States. The education questions asked about their highest level of education completed, date of completion, major area of study and professional credentials. They were also asked whether they were currently enrolled in any education programs, types of program and when their expected date of completion. Under the work experience category, respondents were asked whether they had any other fulltime jobs prior to working for Finco, for how long, in what industry, their highest positions held and whether their previous employment was directly relevant to their current work. The final category of section one asked about the job that they held at the time of the study. Respondents were asked whether that was their first job at Finco. If it was not their first job within the company, they were asked to list other areas of the company in which they had previously worked and for how long. They were also asked about their income, whether they had ever been promoted, the number of times promoted, and the date of their last promotion, their familiarity with the procedures for promotion, how important it was for them to be promoted and whether they felt that their gender and race/ethnicity affected their opportunities for promotion.

Section two of the survey assessed respondents' attitudes towards their jobs, coworkers, project teams, opportunities for advancement within their department and

company, managers and the company. Respondents were asked to indicate on a five-point Likert scale how much they agreed or disagreed with several statements. Statements included "I am secure in my current job," "I find real enjoyment in my job," "my job is interesting," "I am dissatisfied with my current job," "I find my work stressful," "I am fairly well satisfied with my current job," "I often come home from work exhausted," "I look forward to going to work each day." Other questions included how much control they felt they had over how the job was done, their work schedule indicators, their desire to leave their current job of job, their perception of coworkers and manager-coworker relationships. The last part of section two assessed respondents' attitudes toward self-managed teams, their desire to participate and opportunities for team participation.

Section three of the survey asked about employees personal networks within the company. On the first page of section three, respondents were instructed to click on a uniform resource locator (url) link to a new webpage that contained names and a four digit identification number (ID) next to each name. Respondents were instructed to look for their names and then enter the ID number next to their name in a dialogue box in the survey. They were also told that in the remainder of the survey that they will select and enter the ID numbers for persons with who they had the most frequent and substantive contacts during the previous twelve months. In addition to the 138 fulltime employees in investment operations, the roster included names of employees from the two other subdivisions comprising the investments management division and information technology. This decision was made after I was informed by management that project teams may sometimes span those subdivisions as well. The additional subdivisions also

approximate employee connectedness outside of their own subdivision. In all employees could identify up to fifteen persons from the roster with whom they had the most frequent and substantive contacts during the past year. For each contact identified, employees were then asked a series of questions about their relationship with the contact. First, they were asked how long they had known the person identified, how often they had direct contact with that person at work, frequency of contact in a social, non-work related setting, the type of relationship they had with the person, how close they felt to the person, the issues they discussed with that person, how important they thought that person was for advancing their career. The baseline survey lasted approximately twenty-five minutes based on employees' response patterns. Of the 138 persons on the roster 85 persons responded to the baseline survey for a response rate of 62 percent. A copy of the complete survey is included in Appendix B.

I administered a follow-up survey during at the end of June 2009. The follow-up survey repeated questions on changes in work status, promotions, income, responsibilities, satisfaction, commitment and perception of opportunities. Twenty-two employees were laid off between April and June 2009, including some who completely the baseline survey. A total of 73 employees completed the follow-up survey, but with the new roster of 116 employees the response rate remained virtually unchanged at 63 percent. I also obtained an updated employee list from the former senior vice-president and current chief operating officer at the end of the 2009 restructuring period. This list showed all persons who were laid off, promoted or received pay increases up to the end of 2009. I used this list to supplement missing values on those variables in the follow-up survey.

Observation Study

Project team observation commenced on January 26, 2009, and was completed on June 15, 2009. Initially ten project team leaders were selected, six women and four men, with a total of twenty-two different projects among them; however, some projects were postponed or cancelled as a result of the cost-cutting measures. Observations proceeded with seven project team leaders and eleven projects. I was granted unfettered access to the project teams and Finco Investment Operations facilities for the purpose of observation. I was assigned an independent contractor badge, and a partially workspace with a desk, telephone and laptop computer. I was also granted access to the company's internal network and my e-mail address was added to each team's Microsoft Outlook contacts because team meetings were scheduled using Outlook.

Most teams met weekly, usually Mondays, Tuesdays and Wednesdays, but some met biweekly and sometimes on Fridays when deemed necessary. I visited the company three to four times per week for four to six hours per day over the course of 6 months. I attended all weekly meetings, unless two teams had meeting conflicts. In the case of a conflict, I went with the team that had the fewest scheduled meetings at the time. Before the meetings, I was provided the meeting agendas, and I took detailed notes about all events that transpired during the meeting including meeting start and end times, persons present, topics discussed, disagreements when they emerged, how they were resolved, how frequently each team member spoke at a meeting, how team members' suggestions were received by the team, and seating arrangement. I also compared my notes against the minutes of the meeting to confirm accuracy of work related topics. If team members remained behind after a meeting, I also remained behind if I had no other scheduled

meeting to get to at the time. I concluded team visits during the first week of July 2009.

Altogether, I the observation consisted of 163 pages of notes over the six-month period.

Semi-Structured Interviews

During the last month two months of observation, I requested and was granted

interviews with all four vice-presidents, including the senior vice-president. I also

randomly selected 26 other names from the roster and requested interviews with those

employees as well. Twenty-five of the twenty-six other employees agreed to the

interview. If the person being interviewed had a fully enclosed office with a door that

could be closed, then we met in that person's office. This was the case with the vice-

presidents and senior managers. If an interviewee did not have an office, then we met in

huddle rooms, small two-person meeting rooms, which were fully enclosed and had doors

that locked. During the interviews, I asked about the interviewee's job, tenure, prior jobs

at the Finco or at other companies, perception of the organizational culture, perception of

relationships between coworkers and coworker and managers, whether they thought

women experienced discrimination at Finco, what they liked most about their

subdivision, what they would change, and their perception of the workplace under the

new senior vice-president compared the previous senior vice-president. Most interviews

lasted between 45 minutes and one hour, but a couple lasted twice as long. A total of 29

persons including the 4 vice-presidents were interviewed by the time I completed the

study on July 15, 2009. The 29 interviews amounted to three fifty-page legal-size

notepads of data or 150 pages total.

Analytic Sample

The data used in this analysis were drawn mostly from the survey portion of the study; however, I integrate interview and observation data where appropriate to complement the survey data.   A total of 85 respondents completed the baseline survey and 73 completed the follow-up survey. Of the 85 respondents one had a missing identifier and was excluded from the network analysis since I could not match that person to the send and receive network contacts. An additional 34 respondents who did not complete the survey, were identified as belonging to the personal networks of those persons who completed the survey. I was able to obtain information about those 34 persons' gender and work function from management, and they were included in analysis of the formal structure that required those variables only. However, they all had missing values in their send networks, that is, ties sent to others. The total number of persons used in the calculation of network positions and influence was 118 (13,924 dyad), 85 percent of the 138 fulltime employees. The additional 34 employees are missing from analysis of respondents' attitudinal outcomes and regression analysis involving variables for which they have no values. Another 15 percent of respondents had missing values on one or more predictor and outcomes variables in the analysis. A detailed description of the dependent and independent variables used the analysis is provided in the associated chapters.

CHAPTER III

GENDER IN POSITIONS,

WORKGROUPS AND PROJECT TEAMS

Chapter Overview

The proteams argument outlined in Chapter 1 presented self-managing teams as a means of combating gender inequality in the workplace by providing women access to better social capital. According to this argument, the typical workplace is stratified by gender with women occupying the lower stratum of the organizational hierarchy. Women's formal and informal interactions are therefore constrained to mostly other women in similar low-status positions. This gendered pattern of interaction is said to negatively affect women's career opportunities and outcomes because women's positions prevent them from accessing and mobilizing good social capital – benefits from ties to influential persons within the organization. By bringing men and women together from different subunits and functions within the organization, teams afford women opportunities to form ties with influential persons, particularly men, thereby expanding and enhancing the prestige of their informal networks and possibly improving their ensuing work outcomes. I empirically examine this argument and the corresponding hypotheses in this chapter and the next.

This chapter, centers on the relationship between gender and Finco's formal structure. I begin with a description of dependent and independent variables used in this chapter. Next, I provide a description of how work is organized at Finco Investment Operations. Then, I examine the impact of gender on employees' positions, shared workgroups and project teams. This corresponds to part one of the causal model

illustrated in Figure 1. I conclude the chapter with a discussion of the findings and limitations of the analysis.

Method

The Analysis in this chapter used data from the baseline survey discussed in Chapter 2 and supplemental data from management about the positions of alters who were nominated, but who did not complete the survey. Eighty-five employees responded to baseline survey, but a total of 118, 85 % of the population of fulltime workers, were self-identified or nominated in the network data. The larger number of employees (118) was used to compute network measures since it is most representative of the population. However missing values on several covariates reduced the sample used in the regression analyses to 72 respondents in the individual-level analysis or 5,184 dyads in the dyadic analysis.

Dependent Variables

Positions. Employees self-identified as occupying one of five major positions within the subdivision: entry-level professional, senior professional, group lead, senior manager and vice-president and senior vice-president. I combined senior manager and vice-president to create a binary variable for the upper management position variable used in the logistic regression models.

Project team participation. Project team participation was a binary variable for whether an employee participated in project teams or not. I also constructed a measure for the number of project team employees participated in, with values ranging from none to three or more.

Shared workgroups. All nonmanagerial employees were assigned to one of twenty-four small workgroups supervised by a group lead. Each workgroup was recorded as an *m*x*n* affiliation matrix. I used UCINET network analysis program to convert the affiliation matrix into an *n*x*n* square matrix. The resulting variable, shared workgroup, reflected pairs of employees, dyads, who were a part of the same workgroup.

Joint project team participation. Similar to shared workgroups, joint project team participation was converted from a project team affiliation matrix to a square matrix to reflect dyads who participated in the same project teams. Because some employees participated in multiple teams, the resulting measure indicated the number of joint teams. I also collapsed the number of joint teams measure and created a binary variable for dyads having at least one joint team between them. Both measures were used at different points in the analysis.

Independent Variables

Gender. I included a binary indicator for whether a respondent was female.

Control Variables. I introduced controls variables for level of education, years of prior work experience, and years of tenure. Employees were asked to report the highest level of education completed to date. Responses ranged from associates degrees to postgraduate degrees, but most employees had a four year college degree or higher. Prior work experience was the number of years respondents worked in a relevant occupation prior to their current jobs. Few respondents had more than five years of work experience prior to coming to Finco, therefore values six or higher were recoded to six. Years of tenure at Finco ranged from less than one year to twenty-five years. All control variables were converted to difference matrices for use in the dyadic analyses. The resulting

values indicated the absolute difference in values between dyads. For instance, years of

tenure became absolute difference in years of tenure. The descriptive statistics for

variables used in this chapter are presented in Table 1.

Table 1. Descriptive Statistics (N=72 respondents, 5184 dyads)

Variables	Mean	Std. Dev.	Min	Max
Upper management	0.22	0.42	0.00	1.00
Project team participation	0.47	0.50	0.00	1.00
Shared workgroup	0.10	0.30	0.00	1.00
Joint project team participation	0.09	0.28	0.00	1.00
Number of joint project teams	0.11	0.40	0.00	3.00
Female	0.61	0.49	0.00	1.00
Level of education	4.09	0.58	2.00	5.00
Years of prior experience	3.81	2.01	0.00	6.00
Years of tenure	5.77	5.25	1.00	25.00

Analytic Strategy

I employed several techniques to analyze the relationship between gender,

position and project teams. First, to examine the effects of gender on supervised

workgroups and self-managing teams I first used contingency tables with the Pearson chi-

square statistic to compare men and women in the formal structures. Second, I used a

spring-embedding algorithm (Eades, 1984; Sugiyama and Misue, 1995) in NetDraw, a

network visualization program (Borgatti, 2002), to produce images of shared workgroups

and reporting ties, and joint project team participation. The spring-embedder algorithm

moves nodes are similar, in terms of their geodesic distance to all other nodes, closer

together. I used shapes to distinguish the five workplace positions and colors to

distinguish men and women. I used NetDraw to calculate centrality measures and I

manipulated node size such that highly central nodes appear larger than marginal nodes.
I also used UCINET to calculate the actual E-I index and expected E-I index for shared
workgroups and joint project team participation. The E-I index computes whole network
gender homophily by subtracting the number same-gender ties from the number of mixed
gender ties and dividing the difference by the total number of ties. Values range from 1
to -1; positive values suggest heterophily and negative values suggest gender homophily.
The expected E-I index is homophily based on purely random associations. Finally, I
estimated logistic regression models to examine the effects of gender on upper
management and project team participation, and Simpson (2001) QAP logistic regression
to estimates the effect of gender on shared workgroups and joint team participation using
STATA. The Simpson (2001) QAP procedure in STATA simultaneously corrects for
nonindependence and nonnormality, two major concerns of highly skewed dyadic data
used in this analysis.

An Overview of Finco's Workgroups and Project Teams

Workgroups

Work at Finco Investment Operations was organized around two formal
structures: workgroups and self-managing project teams. All nonmanagerial employees
were assigned by senior managers to small workgroups that focused on specific products
and services. Major products and services included securities processing, derivative
operations, portfolio performance measurements, external money management
processing, accounting, settlements and collateral, securities pricing, data operations, data
quality testing and support, records retention, custodial banking and realty accounting
services. Each workgroup had a "group lead", whose primary duties were those of a

group supervisor or junior manager, including delegating tasks and evaluating workgroup members' performance. Few persons, however, referred to group leads as supervisors. In fact, there appeared to be a concerted effort by managers and employees alike to downplay formal positions. As Leon, a senior manager said in the interview, "leadership here is about what people do, not the title they have."

Workgroup membership was generally fixed, unless someone was promoted, transferred to another workgroup, or left the subdivision. Work was also highly routinized and performed individually with little or no group collaboration. For example, workgroup members generally sat at desks in small cubicles entering, updating and analyzing data, or auditing and updating accounts among other tasks. However group members and group leads shared a common space because their cubicles were adjacent to each other. Most group leads did not have an enclosed office with a door, but group members' cubicles were located just outside of the offices of those who did. Group leads met once or twice a month with the senior managers to whom they reported to give updates on the status of their groups work and to get new information about tasks to convey to group members. Thus, the frequency of workgroup meetings depended on the frequency of meetings between the group leads and senior managers. Despite efforts to downplay distinction between group leads and their group members, workgroups at Finco were largely supervised workgroups, and while work was mostly done individually, spatially, group members and group leads worked in close proximity to each other. Subsequently, they were likely to encounter each other on a regular basis, more so that they were likely to encounter non-group members.

Self-Managing Project Teams

Unlike workgroups, self-managing project teams were selective and less rigidly structured. According to the senior vice-president, project team members were selected from among their respective workgroups based on five key factors: "availability," "subject matter expertise," "employee personal style," "leadership development potential," and at "the recommendation of managers." A project team existed for the duration of a project, and most projects lasted about six months, but some were known to last for as much as a year or longer. Still, in comparison to workgroups, project teams had a much shorter lifespan. Importantly, joining a project team did not mean that team members abandoned their workgroups. Team members were granted a reduction in their workgroup workloads which corresponded to their time commitments to project teams. Still, it was not uncommon to have team members comment about being "overextended" or about the challenges of "competing priorities" between workgroups and project teams. For example, Ashley a senior data analyst with eight years tenure commented that, "it is frustrating that project teams take away from other work (workgroup tasks)." Curiously, however, Ashley and other project team members interviewed did not indicate any willing to pass up opportunities to participate in teams. In fact Ashley further clarified, "I like the project work because of the exposure you get to other areas, departments…." Many others interviewed said the same, that teams were a way for employees to get exposure. Hence, simply being invited to join a team appeared to have been status indicator in and of itself. As Leon one of the senior managers said, "I try to get the superstars when I sponsor a project."

Team projects originated with project sponsors, usually two or three senior managers or vice-presidents such as Leon and were often designed to test new products, or to address some external concern such as threats from competition or government regulations. For example, one of Leon's co-sponsored projects was a merger with a Canadian company to expand Finco's operations within the Canadian market. Team members had to coordinate all aspects of the merger including reducing duplicate positions, marketing and relocating some Canadian-based operations to the focal Finco location. Hence, project sponsors determine the projects and the project goals, but the day-to-day management of the project was left to the team and project manager. However, unlike workgroups, project managers generally had no supervisory authority over team members.

The role of project manager was more akin to that of a coordinator or facilitator than a manager. In fact, most project managers had no managerial authority at all, and were often outranked by more senior personnel on their teams, including some senior managers. Project team managers organized group meetings, met with project sponsors and communicated project sponsors' feedback on team progress reports, but they usually had no formal authority to evaluate team members' performance. However, a project team member's group lead could informally inquire about that project team member's performance from the project manager, or the project manager could inform project sponsors about difficulties working with particular team members.

Senior managers did not join their own sponsored project teams, they occasionally sat in on team meetings, but other senior managers with relevant expertise were invited to join project teams if they were available. Importantly, according to the vice-presidents,

only managers were allowed to participate in project teams when the practice was

initially adopted several years earlier. However, the practice had since been extended to

persons at all levels of the organization. From my observations, the senior managers who

joined project teams did not attempt to facilitate or control the team meetings. Still there

were instances where less experienced project managers deferred to senior managers on

their teams. For example during the Canadian merger team meetings, Debbie, a young

female project manager with four years tenure, often deferred to the senior manager Bill

on her team. Bill, a longtime employee with more than twenty years at Finco, usually

responded politely but at times he appeared a bit perturbed at being put on the spot.

Tasks assignments in project teams often coincided with team member's

workgroup functions, especially in the case of subject matter experts, but team members

generally volunteered for specific tasks and were not restricted to their specific

workgroup functions. Thus, as Ashley and others stated in their interviews, team

participation created opportunities for team members to learn new skills.   Most team

members were assigned to teams for less than a third of their work time, but some

persons requested and were sometimes permitted to devote more of their work day to

teams, than workgroups. For example, Ashley, the senior data analyst, spent more than

85% of her work time doing team work. Another female employee, Renee, who had

more than 25 years of experience with account auditing and 3 years tenure at Finco, was

promoted to a group lead position after being at Finco for just one year as she was

thought to be a "superstar." Renee was demoted about four months later for what she

claims senior managers called "inadequate management skills" and "not being a team

player." Based on her interactions with other senior managers, Renee attributed her fall

at Finco to "having different ideas from other managers." However, instead of returning

to her previous workgroup position, Renee requested and was permitted to devote 100%

of her time to project team. Thus, she became the only employee at Finco at that time

who had a 100% assignment in project teams. When asked why she made that request she

responded, "I did not want to be told what to do by someone else in a workgroup. At

least project team managers have no real power over you."

Ashley and Renee were anomalies in terms of time spent on team projects, but it

was also not unusual to encounter many of the same persons on multiple teams. Project

teams were awarded bonuses based on whether they met or exceeded the goals of the

projects, thus there were financial incentives, in addition to the prestige of being a part of

a project team. In sum, while there was some oversight from project sponsors, project

teams at Finco Investment Operations were loosely structured groups that depended more

on team member cooperation than on formal authority to get work done. Team successes

also brought additional benefits to team members.

<u>**Gender Stratification in Finco's Workgroups**</u>

The first two claims of the proteams argument are that the workplace is

segregated by gender and more men occupy upper management positions than women. I

examine these claims by first testing for gender differences in positions using bivariate

contingency tables, graphic representations and logistic regression models. Table 2

presents the bivariate relationship between positions and gender at Finco. The values

reported are the percentages of men and women in each position. Positions included

entry-level professionals, senior professionals/ subject matter experts, group leads, senior

managers and the vice-presidents. Entry-level professionals were mostly persons

engaged in accounts maintenance, data entry and analysis, and most had accounting and finance degrees. The senior professionals, who were often referred to as subject matter experts (SMEs) were persons whose job descriptions included senior accountant, senior business analyst and securities and derivatives experts. Group leads, as discussed earlier, were persons who supervised the workgroups, and senior managers and vice-presidents were persons at the top of Finco Asset Management hierarchy.

Of the five positions, the distinction between senior professional and entry-level professional was least unclear. Exactly what qualifications one needed to be designated senior professional remains somewhat elusive since senior professionals had similar degrees and tenure to entry-level professionals. For example in the baseline sample of 81 persons for whom education information is available, 22 SMEs had bachelors compared to 28 entry-level professionals and 4 persons in each category had advance degrees. They were even closer in terms of years of tenure. Thus senior professional appears to have been a purely internal designation for persons whom the senior manager like Leon referred to superstars. This certainly appears to be this case with Jeb, a 27 year old male who had a bachelor's degree in accounting and just three years of tenure. Yet Jeb was given the title of senior accountant.

Do Men and Women Hold Different Positions?

Of the total 118 fulltime employees who either self-identified or were identified by someone else, 46 employees (39 percent of the sample) were men, and 72 employees (61 percent) were women. The employees not included in the sample were largely entry-level professionals and mostly women. Based on Table 2, there were significant gender differences in the lowest ranked entry-level position and in the high-ranking senior

manager position. Almost twice as many women (53 percent) were employed as entry-level professionals compared to 30 percent of men. However, the percentage of men employed as senior managers was three times higher than the percentage of women in similar positions. Specifically, 22 percent of men occupied senior manager positions compared to just 7 percent of women. There were also more men in senior professional positions and more female group-leads, the low-level supervisory positions, but these differences were not statistically significant. The percentages were just about equal at the level of vice-president. However, there were only four vice-presidents, two of whom were women, including the senior vice-president. Still, based on the differences observed in Table 2, it appears that the distribution of positions at Finco Asset Management partly supports the proteams claim since more men hold senior management positions and more women hold entry-level positions.

Table 2. Percentage Distribution of Position by Gender

Position	Totals	Male %	Female %	χ^2
Entry-level professional	52	30	53	5.7*
Senior professional	29	33	19	2.6
Group lead/supervisor	18	11	18	1.1
Senior manager	15	22	7	5.5*
Vice-President	4	4	3	0.2
N	118	46	72	

*** $p<.001$, ** $p<.01$, * $p<.05$

Because there were only four vice-presidents and vice-presidents and senior managers worked closely together, I combined the vice-president and senior management

categories to create a new category called upper management. I test for gender differences in upper management and team participation in Table 3. The results show a statistically significant gender difference in upper management. Twenty-six percent of men were employed in upper management in comparison to just 10 percent of women in the sample. In contrast, 50 percent of women participated in project teams in comparison to 44 percent of men. However, the difference between men and women in project team participation was not statistically significant. Hence, consistent with the proteams argument, women are less likely to be in upper management, but equally likely to participate in project teams. Still, mere project team participation does not tell us whether teams are segregated by gender. I examined the actual structures of workgroups and project teams in the visual representations that follow.

Table 3. Gender by Upper Management and Team Participation (N=118 employees)

Variables	Men %	Women %	χ^2
Upper Management	26	10	5.6*
Project team participation	44	50	0.1
N	46	72	

*** p<.001, ** p<.01, * p<.05; one-tail test

Figure 2 presents a visual representation of workgroup coworkers and reporting ties. Red nodes identify women and blue nodes identify men. Circles represent entry-level professionals, squares represent senior professionals, down-triangles represent group leads, up-triangles represent senior management and diamonds represent vice-presidents. The large diamond and upper triangles are upper managers to whom

workgroups report. The small clusters branching out from the upper management core are coworker ties within workgroups. There are a total of 24 workgroups with a mean of 7 persons per group. The distribution of red and blue nodes within Figure 2 suggests that workgroups differ in gender composition. Some groups are mostly male and others consist of mostly women. Also, the gender of a group-lead (the down triangles) appears to correlate with the overall group composition. Predominately male workgroups have blue down triangles indicating male group-leads, and female workgroups have red down triangles indicating female group-leads. The E-I index of gender homophily reported at the bottom of Figure 2 was -0.14, which is larger than the expected E-I index of -.04. However, the probability that -.14 is significantly larger than -.04 is 87 percent, just short of statistical significance.
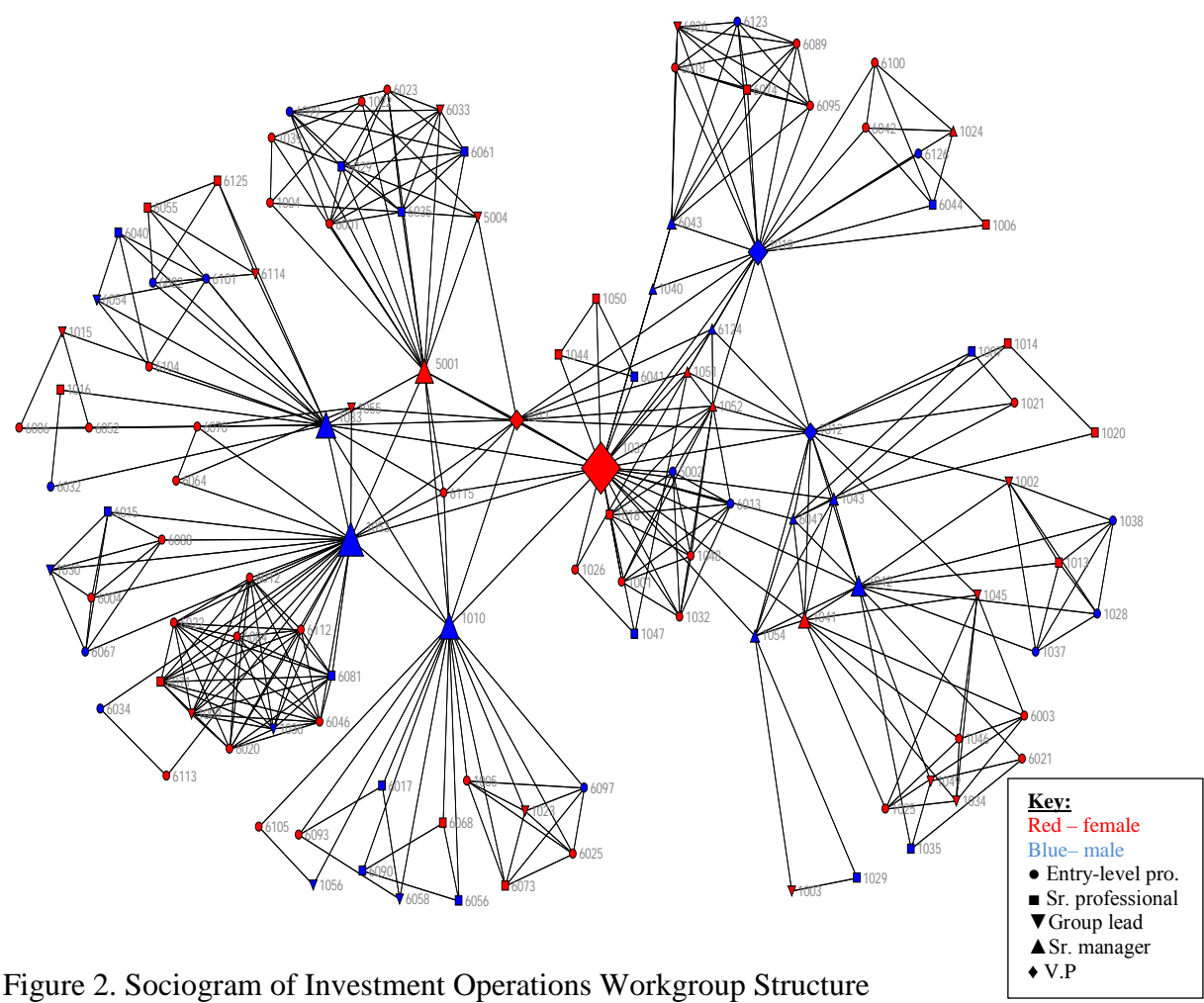
Figure 2. Sociogram of Investment Operations Workgroup Structure

Notes. Gender homophily in workgroups: E-I index = -0.14; Expected E-I index value =-.04, Prob. that -0.14 is significantly different =0.87.

Similar to Figure 2, I used the spring embedder algorithm in Netdraw to generate a visual representation of the project team linkages. Those results are presented in Figure 3. The color and shapes of nodes in Figure 3 convey the same information as in Figure 2: red represents women and blue represent men. There are notable differences between Figures 2 and 3. First, ties in teams overlap. This suggests that some team members participate in multiple teams, unlike workgroups where employees are assigned to just

one group.   Second, the distribution of blue and red nodes throughout Figure 3 appears more balanced, suggesting a more even distribution of men and women within project teams.   The E-I index for gender homophily was -0.02, which was smaller than the expected index of -0.04 and the probability that the observed value was significantly different from the expected value was 46 percent.   Hence, based on the E-I index in Figure 3, gender did not determine project team assignment.   Also, when compared to the E-I index in Figure 2 where the probability of a significant difference was .87; there is a much smaller probability of observing gender homophily in project teams than in workgroups. I explored this observation further in the analyses below.
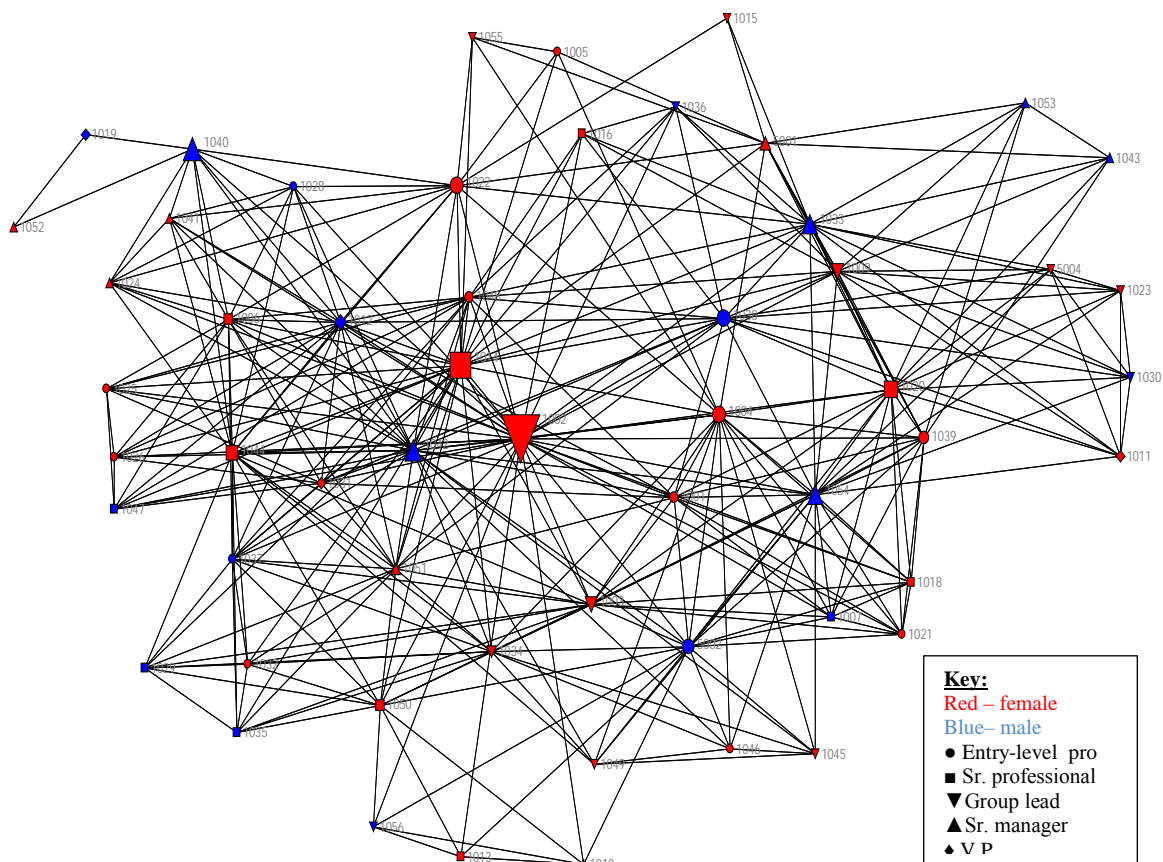
Figure 3. Sociogram of Finco Investment Management Project Team Linkages

Note. Gender homophily in project teams: E-I index = -0.02; Expected E-I index value = -.04, Probability that -0.02 is significantly different =0.46.

Table 4 presents the bivariate analysis of gender and joint participation in both workgroups and project teams. Unlike Table 3, the analysis in Table 4 is at the level of the dyad, that is, there is a tie between two employees if they belong to the same workgroup or project team. Thus, Table 4 presents analysis of the ties within groups from Figures 2 and 3, with one adjustment. I excluded reporting ties to upper management shown in Figure 2; therefore, the shared workgroup measure used in Table 4

consists of ties among persons within each workgroup only. There were no exclusions from the project teams since project teams had no formal reporting ties.

Based on the bivariate analysis in Table 4, there were statistically significant gender differences in shared workgroups and joint project team participation. There were more same-sex dyads within workgroups and project teams than there were mixed-sex dyads. However, the difference is larger in workgroups than it is in project teams. Since, these ties reflect formal group assignment by managers, not employee personal choice, these differences suggest that gender plays a role in manager's decisions to select employees for specific workgroups and project teams. However, the bivariate analysis does not include measures of human capital such as education and experience. It is possible for the association between gender and joint participation in both workgroups and project teams to disappear with we control for other factors.

Table 4. Gender by Shared Workgroups and Joint Project Teams (N=13,924 dyads)

Function	Men %	Women %	$\chi2$
Shared workgroups	7.1	9.8	32.8 ***
Joint team participation	4.6	5.2	3.0 *
Column total	6624	7300	

*** p<.001, ** p<.01, * p<.05; one-tail test

Regression Analyses Predicting Positions and Joint Affiliation

The above figures and bivariate analyses suggest that gender may matter for employee's position and group assignment at Finco. In this section I used multivariate regression analysis to determine if the gender association holds net of other relevant factors.   First, I estimated logistic regression models predicting upper management and

team participation at the level of the individual employee. Then I use QAP logistic

regression to estimate joint participation at the dyadic level.

I present the results of the logistic regression predicting upper management in

Table 5. The results of in Table 5 confirm the gender gap in upper management. In

model 1 prior to controlling for human capital, women were 69 percent less likely to be

in upper management at Finco ($\exp^{(b=-1.17)}$-1, p=.02 in a one-tailed test). After controlling

for education, years of experience and tenure in model 2, the size of the gap between men

and women increased. Net of education, tenure and prior work of experience, women at

Finco were 74 percent ($\exp^{(b=-1.34)}$-1, p=.02) less likely to be in upper management. The

control variables, education, years of experience and tenure all had positive effects on the

likelihood of being in upper management, but those effects only widened the gap between

men and women, not reduce it. Hence, consistent with hypothesis 1a men hold more

upper management positions than women at Finco Asset Management, even after

controlling for education, work experience and tenure.

Table 5. Logistic Regression Predicting Upper Management (N=72)

Variables	Model 1		Model 2	
	b	S.E.	b	S.E.
Female	-1.17	0.58*	-1.34	0.65*
Level of education			1.17	0.62*
Years of prior experience			0.36	0.19*
Years of tenure			0.25	0.11*
Constant	-0.60	0.38	-8.22	3.11**
Pseudo R^2		0.05		0.19
Log likelihood		-37.23		-31.76

*** p<.001, ** p<.01, * p<.05, one-tail test

Table 6 presents the results of the logistic regression predicting project team participation. Importantly, this team participation measure simply captures whether someone participated in project teams, not the actual team ties. Also, because teams are said to include persons from various positions, I included position as a predictor of team participation. Subsequently, I present three models instead of two; the third model shows the effect of position. Entry-level professional, the single largest category, is the reference position.

According to Table 6, women were significantly more likely to participate in project teams than men. In models 1 and 2, women were roughly 3 times more likely to participate in project teams. The inclusion of the three control variables in model 2, increased likelihood of participation slightly, but only prior experience and tenure had significant positive effects on team participation, not education. With the inclusion of position in model 3, the odds of women participating in project teams increased to 4.5 ($\exp^{(b=1.51)}$, p=.009 in a one-tail test). Persons in upper management were more than 8 times ($\exp^{(b=2.18)}$, p=.017 in a one-tail test) more likely to be involved with project teams in comparison to entry-level professional. However, the effects of tenure and experience were attenuated with the inclusion of position. Hence, gender and position determined team participation. While hypothesis 1b asserted that women and men would have equal opportunities to participate in project teams, Table 6 found that project team participation favored women. Also, the finding that upper management were more likely to participate in teams than entry-level professionals suggests that project teams may have retained some of their initial structure where managers were the ones who participated in teams.

Table 6. Logistic Regression Predicting Project Team Participation (N=72)

Variables	Model 1		Model 2		Model 3	
	b	S.E.	b	S.E.	b	S.E.
Female	1.07	0.50*	1.11	0.55*	1.51	0.64**
Level of education			0.32	0.48	0.02	0.55
Years of prior experience			0.29	0.14*	0.19	0.15
Years of tenure			0.16	0.09*	0.09	0.10
Senior Professional					-0.38	0.71
Team Lead					0.94	0.87
Upper Management					2.18	1.03*
Constant	-0.06	0.36	-3.23	2.26	-2.03	2.44
Pseudo R^2		0.05		0.12		0.20
Log likelihood		-45.32		-42.01		-38.36

*** p<.001, ** p<.01, * p<.05

I present the results of the QAP logistic regression predicting shared workgroup ties in Table 7. The results of both models show that gender was associated with workgroup assignment. For example in model2, women were 1.6 times (exp $^{(b=.46)}$, p<.000 in a one-tail test) more likely to be assigned to workgroups consisting of other women than they were to workgroups with men, net of education, experience and tenure. Experience and tenure influenced workgroup assignments as well. Larger differences in prior experience between dyads reduced the likelihood of being in the same workgroup. Stated differently, workgroups were comprised of persons with similar prior work experience. In contrast, larger differences in tenure increased the likelihood of two people being in this same workgroup. However, neither experience of tenure reduced the likelihood of same-sex workgroup assignments. In fact, the likelihood of two persons of the same sex sharing a workgroup increased slightly in model 2 after including the

control variables. These results support the hypothesis 1a that workgroups would be

segregated by gender.

Table 7. QAP Logistic Predicting Shared Workgroups (N=72 respondents, 5184 dyads)

Variables	Model 1		Model 2	
	b	S.E.	b	S.E.
Female	0.44	0.10 ***	0.46	0.10 ***
Difference in level of education			0.01	0.07
Difference in years of prior experience			-0.09	0.03 **
Difference in years of tenure			0.11	0.01 ***
Constant	-2.47	0.07	-2.96	0.11 ***
Pseudo R^2		0.01 ***		0.06 ***
Log likelihood		-1640.63		-1553.60

*** p<.001, ** p<.01, * p<.05, one-tail test

Finally, the results of the QAP logistic regression predicting joint team

participation are presented in Table 8. In model 1 gender is associated with joint team

participation. Specifically, two women were 1.2 times (exp $^{(b=.20)}$, p<.02 in a one-tail test)

more likely to participate in the same project team than were male and female dyads.

This pattern held in model 2 as well. However, differences in education and prior

experience also reduced the likelihood of joint team participation in model 2. The

introduction of shared workgroup in model 3 attenuated the gender difference in joint

team participation. Sharing a workgroup increased the odds of jointly participating in

project teams by 3.6 times (exp $^{(b=1.27)}$, p<.000 in a one-tail test), but differences in

position was not significant. I also analyzed the number of joint project teams using the

QAP negative binomial regression in additional analyses not presented. The results were

very similar, thus I decided on the simpler logistic regression models given the sample

size. The negative binomial results are available upon request.

Table 8. QAP Logistic Predicting Joint Project Team Participation
(N=72 respondent, 5184 dyads)

	Model 1		Model 2		Model 3	
Variables	b	S.E.	b	S.E.	b	S.E.
Female	0.20	0.10*	0.20	0.10*	0.12	0.10
Difference in level of education			-0.53	0.09**	-0.53	0.09***
Difference in years of prior experience			-0.18	0.03***	-0.15	0.03***
Difference in years of tenure			-0.01	0.01	-0.02	0.01
Different positions					0.00	0.05
Shared workgroup					1.27	0.13***
Constant	-2.43	0.07***	-1.80	0.11***	-1.92	0.12***
Pseudo R^2		0.00		0.03***		0.05***
Log likelihood		-1555.77		-1517.47		-1474.02

*** p<.001, ** p<.01, * p<.05, one-tail test

In sum, I hypothesized that workgroups, not project teams will be segregated by

gender and that men will be in positions of power. I found some support for this

hypothesis. First, women were less likely to be in upper management when compared to

men. Second, persons of the same sex were more likely to share the same workgroups

than persons of a different sex. However contrary to expectation, I found that women

were more likely to participate in project teams, and they were more likely to participate

in teams with other women than they were teams with men. Shared workgroup

attenuated the gender difference in joint project team participation, but differences in

positions had no significant effect on joint team participation. Below I discuss the

implications and limitations of these findings.

<u>Discussion</u>

This chapter focused on the effect of gender on four dimensions of Finco Asset Management formal structure: position, project team participation, shared workgroup and joint project team participation.   The main findings that workgroups were stratified by gender, and men were more likely to be in upper management support the proteams argument. Regardless of their education, prior work experience and tenure at Finco, women were ushered into low-ranking positions and workgroups consisting mostly of other women. Indeed, the three measures of human capital were important predictors of upper management, and prior experience and tenure predicted the likelihood of two employees being assigned to the same workgroup. However, these measures did nothing to reduce workgroup gender segregation or increase women's chances of being in upper management. In fact, the effect was the opposite of what the human capital view would expect. With human capital held constant, women were even less likely to be in upper management and more likely to be in same-sex workgroups.   It appears, then, as other scholars have suggested, that merit-based human capital is insufficient for women to circumvent inequality in the workplace (Castilla 2008; Smith 2005). But, is the self-managed teams structure the answer? Are teams really any less likely to be segregated by gender? Recall that despite her optimism over the potential of the team structure, Acker (2006) did assert that all organizations are gendered organizations. Hence, gender segregation in the workplace may be more about the degree of segregation, not the absence of segregation.   But to what extent are self-managed teams gendered?

Results for the effect of gender on team participation showed that women were more likely to participate in teams than men. This exceeded the expectation asserted in

hypothesis 1b that men and women would have similar opportunities to participate in project teams. Not only did women have as many opportunities as men to participate in project teams, their opportunities exceeded those of the men. For advocates of team-structured work, this unexpected finding should be a welcomed surprise, provided that teams confer the benefits that they are thought to confer. However, other findings are troubling. First, other than gender, the upper management position was the only other variable to predict team participation. Upper-level managers were several times more likely to participate in teams than entry-level professionals, which is consistent with the story of teams being a managers-only endeavor at the get-go several years earlier. Unfortunately, most women were entry-level professionals, not upper management.

Second, as in workgroups, women were more likely to participate in same-sex project teams. Hence, project teams too appear to be gendered organizational structures. However, the gender difference in joint team participation was explained by the workgroup structure. This is consistent with hypothesis 1b because, there was no significant effect of gender on joint team participation after controlling for workgroups. At the same time, the direction of the effect of shared workgroup and the lack of association between difference in position and joint team participation were inconsistent with hypothesis 1b. According to the proteams argument, what makes teams different is the presence of cross-cutting ties, that is, persons coming together from different workgroups and positions. Yet, it is not differences in workgroups and positions that predict joint team participation, it is similarity in workgroups. This suggests that managers may not be selecting from a broad cross-section of employees to form project teams, but are relying on particular groups of employees instead. If women are not a part

of those particular groups and teams do provide advancement opportunities, then women could lose out on valuable opportunities.

The findings that upper-level managers were more likely to participate in teams and that shared workgroup was positively associated with joint team participation highlight a key limitation of this study – the issue of selectivity. The effect of project teams depends largely on how employees are selected to join teams. The cross-cutting ties argument assumes plurality in position and workgroup representation in project teams. However, the findings thus far show that teams favor upper-level managers and multiple persons from a select set of workgroups. At the same time, I find that women are more likely to participate in teams. This greater likelihood of women participating in teams at Finco Asset Management may simply reflect the fact that there were more women than men in the subdivision. Hence, it is possible that what is observed as the effect of teams on men and women's work outcomes at Finco may have less to do with the ways in which team work, and more to do with the proportion of men and women in the workplace. In other words, managers may prefer to have mostly male upper-level managers in teams, but because there are few managers they may have been forced to extend participation to the female majority in lower-ranking positions.

The fact that women are the majority at Finco Asset Management, may be telling as well. It is possible that there is a higher order selection bias occurring outside of the Finco Asset Management subdivision, which is ushering more women into the subdivision in the first place. As stated in Chapter 2, Finco Asset Management falls into the category of "back office" in the financial services industry. According to the U.S. Census Bureau Statistical Abstract 2009, in 2007 roughly 43 percent of all employees in

finance-related services were women, but more than 60 percent of these women were employed in back offices. As hubs of asset management and maintenance, back offices generally have less prestige and stands in contradistinction to the "front offices," which are usually majority male and the hubs of high-earning, trading activity. To illustrate the difference in prestige, someone once informed me jokingly, that the back office for Wall Street was actually not on Wall Street, but in New Jersey. I examine these issues in the next two chapters.

CHAPTER IV

GENDER AND THE INFORMAL STRUCTURE

<u>Chapter Overview</u>

Chapter 3 found that men and women occupied different positions and that

workgroups were structured by gender. Project teams, however, were not segregated by

gender after controlling for workgroups, and women were more likely to participate in

project teams than men. Hence, there was some confirmation of the proteams argument,

albeit a few caveats. Do these differences in the composition of workgroups and project

teams affect the informal social relationships at Finco Asset Management? Or, are the

social networks at Finco Asset Management shaped by gender? In this chapter, I

examine the effects of gender, workgroups and project teams on men and women's social

networks at Finco Asset Management. I begin with a description of the different

informal networks identified in the survey, then I test for gender differences and whether

workgroups, team participation or network characteristics explains those differences.

<u>Method</u>

The data used in this chapter consist of the 85 respondents in the baseline survey

discussed in Chapter 2. Missing identification for one respondent reduced the baseline

survey to 84 respondents and 7,056 dyads. However, as in Chapter 3, missing values on

predictor variables reduced the sample size to 72 respondents and 5,184 dyads in the

multivariate analyses. The predictor variables are the same as Chapter 3, but I added

joint project team participation, the dependent variable from Chapter 3. The dependent

variables came from the social network section of the survey discussed in Chapter 2.

Respondents identified up to 15 persons with whom they had substantive contact within

the past twelve months. They also provided data on the type of relationship and their

perception of how important they felt that relationship was for their personal career

advancement. I included the "importance of tie for career advancement," as a predictor

to test the strategy hypothesis from Chapter 1. The different types of informal ties

comprise the dependent variables.

Dependent Variables

Informal structure. The informal structure consisted of choice relationships between

employees. Respondents identified six types of informal ties: friendship, acquaintances,

confidants, nonwork social gathering, advice and mentorship ties. I first tested each type

of tie for gender differences and then I combined these ties into a single measure to

reflect any informal tie that a respondent had. I also created a measure for the number of

ties that a respondent had and conducted separate analyses using that measure.

Joint ties to other subdivisions. In addition to the roster for the back office, respondents

also had rosters for the two other subdivisions, since project teams included persons from

those groups as well. I treated ties to persons outside of the back office as affiliation

networks and created a square matrix to indicate pairs of respondents who shared a tie to

someone in another subdivision.

Analytic Strategy

Similar to Chapter 3, I employed several techniques to analyze the relationship

between gender, position and project teams. First, I first used contingency tables to

check for gender differences in different types of tie formations. Second, I used a spring-

embedding algorithm (Eades, 1984; Sugiyama and Misue, 1995) in NetDraw, a network

visualization program (Borgatti, 2002), to produce images of the informal structure. I

present visualizations of the friendship network and the combined acquaintance, advisor, confidant, friendship, mentorship and nonwork-related gathering network. Finally, I used QAP logistic to estimate the effect of gender and the formal structure on friendships, any informal network and ties to persons in other subdivisions. The descriptive statistics for the informal networks used in the multivariate analyses are presented below.

Finco's Informal Structure

Table 9 provides the number of ties, means and standard deviations for all informal networks. Ties in the informal networks are directed ties since employees choose whom they want in their informal networks, and ties are not necessarily reciprocated. Each of the informal networks identified by the respondents was quite sparse. The advice network was smallest with a total of just 6 ties and a mean of .001. The mentorship network consisted of 10 ties, confidant 11 ties, acquaintanceship 16 ties, friendship 41 ties, and the nonwork social gathering was largest with 101 ties or 1.4 percent of the total possible ties. These networks combined had a total of 123 ties or 1.7 percent of the total possible ties. The number of ties had mean of .029 or 3% of all possible ties. There were also 74 joint ties to other subdivisions, and the mean tie importance was .11 on a six-point scale.

Table 9. Descriptive Statistics for Informal Network (N=72 respondents, 5182 dyads)

Variables	No. of ties	Mean	Std. Dev.	Min	Max
Acquaintance	16	0.002	0.04	0.00	1.00
Advisor	6	0.001	0.03	0.00	1.00
Confidant	11	0.002	0.04	0.00	1.00
Friendship	41	0.005	0.07	0.00	1.00
Mentorship	10	0.002	0.04	0.00	1.00
Nonwork gatherings	101	0.014	0.12	0.00	1.00
Any informal tie	123	0.017	0.13	0.00	1.00
Number of ties	123	0.029	0.24	0.00	3.00
Joint ties to other subdivisions	74	0.014	0.12	0.00	1.00
Tie importance for career	161	0.110	0.64	0.00	5.00

Gender in the Informal Networks

Table 10 presents the bivariate analysis of gender and each of the informal

networks identified and a combined measure having any type of informal tie. Based on

the Pearson chi-square static, there were significant gender differences in the friendship

network and joint ties to other divisions. Sixty-eight percent of the friendship ties were

among women (p<.019, in a one-tail test). Also, 68 percent of joint ties to other

subdivisions were among women (p=.004, in a one-tail test). Women also had more

acquaintance, advisor and nonwork gathering ties, while men had more confidant ties but

those gender differences were not statistically significant. Overall, women had 14

percent more of any informal tie than men did, but this difference was not significant in

the bivariate analysis. Because I observed a significant gender difference in friendships, I

first analyzed friendships ties, then I conducted analyses for the combined measure

reflecting any informal tie. Joint ties to other subdivisions were also analyzed separately.

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Table 10. Gender by Tie Type (N=84 respondents, 7052 dyads)

Types of ties	Total	Men %	Women %	χ2
Acquaintance	16	38	63	0.68
Advisor	6	33	67	0.50
Confidant	11	64	36	1.09
Friendship	41	32	68	4.31*
Mentor	10	50	50	0.01
Nonwork gatherings	101	44	56	0.74
Any informal tie	123	43	57	1.14
Joint ties to other subdivisions	74	32	68	7.13**

*** p<.001, ** p<.01, * p<.05; one-tail test

The Gendered Structure of Friendships

Figure 4 presents a visual representation of the friendship ties at Finco. There were eight unconnected friendship clusters, with mostly unreciprocated ties. The largest cluster formed a long vine on the right-hand side of the image and most ties along the vine were among women. Female senior manager 5001 and male senior manager 1010 bridged the gap between the mostly female portion of the vine and the cluster with the only workgroup members connected to the main vine – two female senior professionals (6068, 6073) and male group leads (6058). Four of the remaining seven clusters were dyads: two with men only, one with women only and the fourth was mixed-gender. A six person star –shaped cluster consisted of four women and two men, the single triad had two women and one man and a four person cluster had three men and one woman. The smaller clusters also consisted of mostly workgroup members. The E-I index was -.33, a statistically significant department from the expected value of -.04 (p<.05). Hence, according to Figure 4, gender played a significant role in structuring friendships at Finco, but team participation seems to have mattered as well.
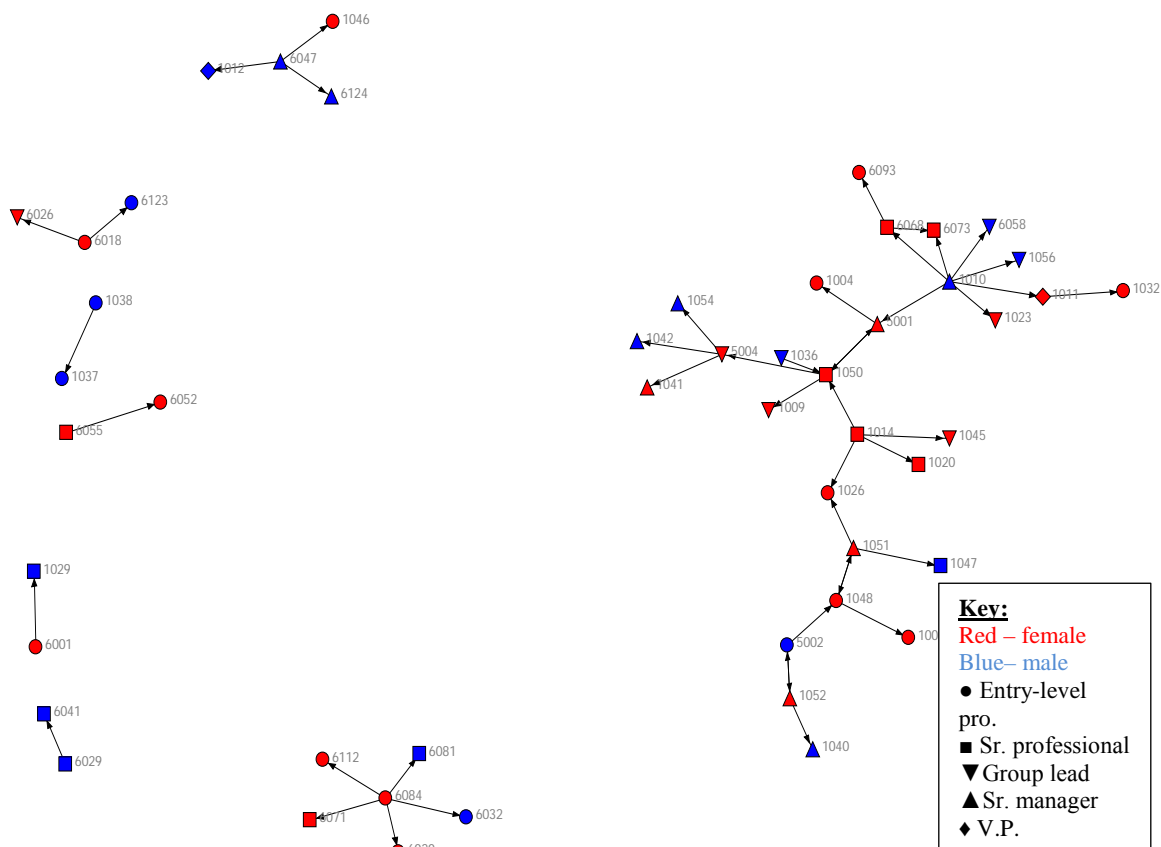
Figure 4. Sociogram of Finco Investment Management Friendship Networks

Note. Gender homophily in the friendship network: E-I index = -.33; Expected E-I index value = -.04, Probability that -0.33 is significantly different =0.97.

Figure 5 presents a sociogram of the combined acquaintance, advice, confidant, friendship, and mentorship and nonwork social gathering networks. Because the network consisted of directed ties, I used in-degree centrality –ties an actor receive from others – to highlight prominence in the network (Freeman 1979). The rational is that people will nominate others whom they perceive to be important. This also guards against persons who list many influential persons, to whom they have little or no real connection, appearing more influential than they actually are. As in Figure 4, gender and project

team participation appear to determine the network structure displayed in Figure 6. The

network consisted of two central clusters and four branches forming smaller clusters

away from the central clusters or core. The most prominent cluster surrounded a single

female senior professional (1050) who had reciprocal ties to a female vice-president

(1011) and a female senior manager (5001). Female 1050 also had directional ties to

female senior manage 5002 and three female group leads (1009, 1015, and 1049). There

were only two males with direct sent ties to female 1050, and neither was reciprocated by

female 1050. The second central cluster is immediately to the right of the majority

female central cluster and comprised mostly men. The male cluster surrounded male

vice-president 1012, three male senior managers (1042, 1054, and 1033) and three male

senior professionals (1029, 1007 and 1035). Unlike, the central female cluster, most core

male ties were not reciprocated. It appears that a single entry-level male 1038 was

driving the formation of the central male cluster and none of his ties was reciprocated.

What is common to those two core groups, however, is that they were entirely 1000s and

5000s, meaning all project team participants.

Directly north of the central female cluster is a moderately prominent cluster of

mostly 6000s that surrounds the male senior manager 1010. Male senior manager 1010

was connected to the female central cluster via female vice-president 1011 and female

senior manager 5001. Curiously, both men and women had ties to senior male manager

1010, but ties between the men and women who were connected to 1010 did not

intersect. Men had ties to other men who had ties to 1010 and vice-versa for women.

The other clusters branching off from the core comprised workgroup members only. And

with the exception of one or two women in each, those clusters were largely made up of

persons of the same gender. Thus according to Figure 5, both men and women from workgroups and project teams had mostly same-sex informal networks. The E-I index for gender homophily was -0.17 and the probability that -0.17 was significantly different from the expected -.04 was .87. At an 87% probability, there was no statistically significant gender homophily in the informal structure in Figure 6, but the probability was still sufficiently large to be substantively meaningful. Importantly, however, both male and female project team participants were the ones at the center of the main cluster. Most workgroup members were either in the periphery or were isolates. Hence, it appears that gender and the formal structure may play a role in the informal structure.
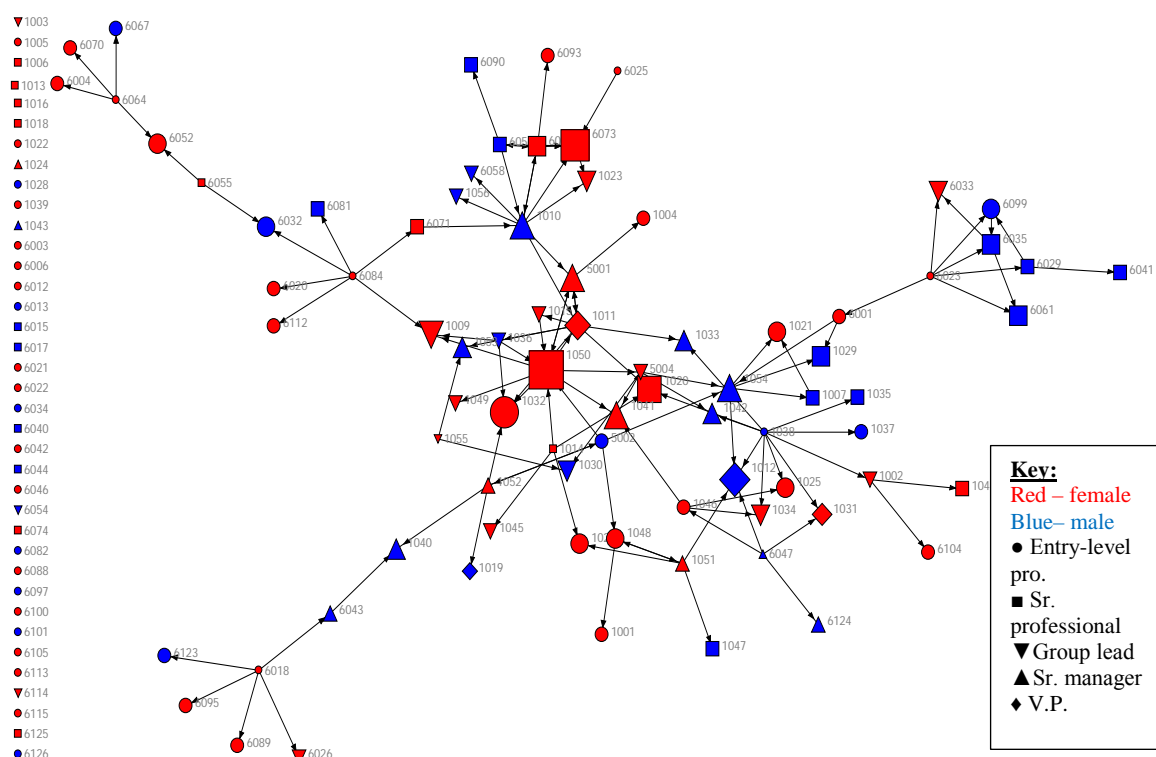
Figure 5. Sociogram of Finco Investment Management Informal Network Structure

Note. Gender homophily in informal structure: E-I index = -0.17; Expected E-I index value = -.04, Probability that -0.17 is significantly different =0.87.

Explaining the Informal Structure

Friendship Ties

The bivariate analysis and visual representation suggest that gender and structure may matter for friendship ties at Finco. I examined this further in the QAP logistic regression predicting friendship ties in Table 11. I report four models. In the first model, I predicted the friendship ties using gender only. Model 2 introduced measures from the formal structure: position, shared workgroups and joint team participation. Model 3 added human capital controls: education and tenure. I included prior work experience in models not presented, but the effect was not significant and it had more missing data, therefore I excluded it in the final analysis. Model 4 adds the strategy measure, importance of tie for career advancement.

I found no statistically significant gender difference in friendships ties in Table 11. The coefficient for female was positive in all four models, but not significant. In models 2 and 3, shared workgroups was the only variable with a significant coefficient. In both models, persons from the same workgroups were more than 5 times more likely to be friends, than persons from different workgroups. However, the effect of shared workgroups was erased when I included the tie importance measure in model 4. People who thought that someone was important for their career were 3.9 times ($\exp^{(b=1.36)}$, p<=.001 in a one-tail test) more likely to report being friends with that person. Also, the coefficient for having different positions became statistically significant in model 4. Persons from different positions were 41 percent ($\exp^{(b=1.36)}$ -1, p=.02 in a one-tail test) less likely to be friends in comparison to persons from similar positions. These results support hypothesis 2a and 2b, the structural constraint and strategy hypotheses.

Table 11. QAP Logistic Regression Predicting Friendship Ties
(N=72 respondents, 5182 dyads)

Variables	Model 1 b S.E.	Model 2 b S.E.	Model 3 b S.E.	Model 4 b S.E.
Female	0.65 0.41	0.48 0.42	0.49 0.42	0.54 0.46
Different position		-0.13 0.17	-0.16 0.17	-0.53 0.22 *
Shared workgroup		1.72 0.43 **	1.69 0.43 **	0.00 0.48
Joint project team participation		0.91 0.47	0.90 0.47	-0.14 0.52
Difference in level of education			-0.32 0.34	-0.52 0.38
Difference in years of tenure			0.04 0.04	0.03 0.04
Tie importance for career				1.36 0.14 ***
Constant	-5.63 0.33	-5.84 0.42	-5.88 0.46	-6.55 0.56
Pseudo R^2	0.01	0.07	0.08	0.44
Log likelihood	-167.56	-157.11	-156.04	-95.18

*** p<.001, ** p<.01, * p<.05, one-tail test

Any Informal Tie

Table 12 presents QAP logistic regression predicting any informal tie. As in

Table 11, I present four models, each testing the net effects of groups of predictors. I

observed no gender difference in model 1, but the coefficient for female was positive.

The introduction of the formal structure measures in model 2 caused the sign of the

coefficient for female to become negative, but still nonsignificant. However, shared

workgroups and joint team participation were both positive and statistically significant.

Specifically, two persons from the same workgroups were 11.9 times ($\exp^{(b=2.51)}$, p<.001

in a one-tail test) more likely to have an informal tie than persons who did not share a

workgroup. Similarly, two persons from the same project teams were 2.2 times ($\exp$

$^{(b=.81)}$ p=.02 in a one-tail test) more likely to have an informal tie. The results remained

virtually unchanged in model 3 with the addition of the control variables. However, the

introduction of the strategy variable in model 4 resulted in substantial changes. First, the

coefficient for female became statistically significant, such that two women were .63

times ($\exp^{(b=-.45)}$, p=.04 in a one-tail test) less likely to have any informal tie, after

controlling for perceived importance of tie for career advancement. Similarly

differences in position and education reduced the odds of two persons having any

informal tie. The effect of shared workgroup was cut in half, but it remained positive and

significant and the effect of joint team participation was completely attenuated. Tie

importance was the single largest predictor of two people having an informal tie. Tie

importance increased the odds of tie formation between two people by 4.5 ($\exp^{(b=1.51)}$

,p<.001 in a one-tail test). These results appear to support the strategy and structure

hypotheses. The results for the negative binomial predicting number of ties were similar,

except that the female coefficient did not become significant. Those results can be

viewed in the Appendix Table A1.

Table 12. QAP Logistic Regression Predicting Any Informal Tie
(N=72 respondents, 5182 dyads)

Variables	Model 1 b S.E.	Model 2 b S.E.	Model 3 b S.E.	Model 4 b S.E.
Female	0.04 0.22	-0.21 0.22	0.20 0.22	-0.45 0.31 *
Different position		-0.11 0.09	-0.15 0.10	-0.49 0.15 **
Shared workgroup		2.51 0.23 ***	2.48 0.24 ***	1.25 0.33 **
Joint project team participation		0.81 0.27 *	0.84 0.27 *	0.06 0.38
Difference in level of education			-0.13 0.18	-0.42 0.25 *
Difference in years of tenure			0.04 0.02	0.08 0.03 *
Tie importance for career				1.51 0.09 ***
Constant	-4.08 0.16	-4.55 0.22 *	-4.62 0.25 *	-5.47 0.37 ***
Pseudo R^2	0.00	0.14	0.15	0.59
Log likelihood	-445.88	-382.99	-381.24	-181.04

*** p<.001, ** p<.01, * p<.05, one-tail test

Ties to Other Subdivisions

Finally, I present the results of the QAP logistic regression predicting joint ties to other subdivisions at Finco. Model 1 shows a significant positive association between female and joint ties to other subdivisions. Specifically, two women were 2 times ($exp^{(b=.69)}$, p=.03 in a one-tail test) more likely to share ties to other subdivisions than a woman and a man. The gender difference was reduced slightly in model 2, but remained statistically significant. However, shared workgroup and joint team participation also significantly increased the likelihood of joint ties to other subdivisions. In model 3, differences in education reduced the likelihood of ties to other subdivisions, but did not have much of an impact on the other measures in the model. The introduction of the tie importance measure in model 4 was largely uneventful. The main effects held from model 3. In model 4, female dyads were 1.8 times more likely to have joint times to other subdivisions than mixed-gender dyads. Shared workgroups increased the odds of joint ties to other subdivisions by 2.9 ($exp^{(b=1.07)}$, p=.02 in a one-tail test) and joint project team participation increased the odds by 4.8 ($exp^{(b=1.57)}$,p=.002 in a one-tail test). The effect of difference in education stayed the same. Hence, the results of Table 13 support the structure and preference hypotheses.

Table 13. QAP Logistic Predicting Joint Ties to Other Subdivisions
(N=72 respondents, 5182 dyads)

Variables	Model 1 b S.E.	Model 2 b S.E.	Model 3 b S.E.	Model 4 b S.E.
Female	0.69 0.25 *	0.57 0.26 *	0.56 0.26 *	0.57 0.26 *
Different position		-0.06 0.10	-0.03 0.10	-0.05 0.11
Shared workgroup		1.22 0.28 *	1.23 0.28 *	1.07 0.28 *
Joint project team participation		1.76 0.26 **	1.64 0.26 ***	1.57 0.26 **
Difference in level of education			-0.57 0.24 *	-0.58 0.24 *
Difference in years of tenure			-0.01 0.03	-0.02 0.03
Tie importance for career				0.27 0.09
Constant	-4.65 0.21 **	-5.06 0.27	-4.78 0.30	-4.77 0.30
Pseudo R^2	0.01	0.10	0.11	0.12
Log likelihood	-383.80	-348.20	-344.55	-341.01

*** p<.001, ** p<.01, * p<.05, one-tail test

Results Summary

I proposed three competing hypotheses for the effect for the effects of gender, the

formal structure and tie importance on the informal structure. Surprisingly, there were

few informal ties among employees at Finco. I found partial support for each hypothesis.

First, in support of the structural constraint hypothesis, differences in position reduced the

odds of friendships ties and having any type of informal tie, sharing a workgroup

increased the odds of having any informal tie, and jointly participating in a project team

increased the odds of having ties to other subdivisions, net of all other variables. In

support of the strategy hypothesis 2b, tie importance increased the odds of friendship and

having any informal tie within Finco's back office. Tie importance also attenuated the

effects of shared workgroup on friendship ties, joint team participation on any informal

tie and reduced the likelihood of female dyads having any informal tie. In support of the

preference hypothesis, two females were more likely to have ties to other subdivisions than a male-female dyad. However, two women were less likely to have any informal tie after controlling for tie importance.

Discussion

This chapter centered on the third claim of the proteams argument that by cross-cutting functional areas and workflows, self-managed project teams allow women increased visibility and access to positions of power. I tested this claim by analyzing the relationship between gender, the formal and informal structures. The results showed that joint project team participation was associated with having any informal tie and having joint ties in other subdivisions. However, joint team participation was not significantly associated with friendship ties, and tie importance for career attenuated the effect of teams on having an informal ties. These findings seem to favor the strategy argument most. The lack of a significant effect of joint team participation on friendship ties suggests that informal ties in teams were not about socioemotional benefits, but instrumental benefits. In other words employees in project teams were not looking for close friendships, but for what others in their teams could do for their careers. This assertion is bolstered by the fact that the tie importance measure completely explained the project team effect on any informal tie. In contrast, tie importance only partly explained the effect of shared workgroup on any informal tie. This could mean that employees view project team ties as primarily instrumental ties, but view some workgroup ties as socioemotional or support ties. Shared workgroup tie was the only significant predictor of all three dependent variables in this chapter. This reinforces the view of workgroup ties as multipurpose ties. Since persons in workgroups worked in close proximity, were

of similar rank with the exception of the group-lead, and group membership was more permanent relative to project teams, workgroup members may have bonded on multiple levels.

The same could be said of the effect of tie importance on joint ties to persons in other subdivisions. Tie importance had no significant impact on joint ties to other subdivisions, but female was an important predictor of ties to other subdivisions. Women may have forged support ties with other women outside of their subdivision, but relied on the joint team ties for career advancement. This interpretation is consistent with Ibarra (1997) study in which she found that high performing women had both mixed-gender and same-sex ties. She concluded that high performing women may rely on the men for instrumental purposes and on their female ties for expressive purposes such as emotional support. Hence, workgroup ties and ties to other subdivisions at Finco may help women cope with difficulties in the workplace, while project team ties provide opportunities for career advancement.

The finding that pairs of women were less likely to have any informal tie after introducing tie importance in Table 12 is also of interest. This resonates with Chatman and O'Reilly (2004) finding that women held more positive views of their same-sex groups, but expressed a desire to leave those groups and join male groups for instrumental purposes. Hence, this finding reinforces the above findings that women who were career focused may have neglected same-sex ties in favor of mixed-gender ties that could help advance their careers since upper management was comprised of mostly men.

One surprising finding was the lack of informal ties among employees at Finco Investment Operations in the first place. Both women and men in teams had few ties, and

those not in teams had little or no ties. This runs counter to the view of the majority of

employees interviewed who described the work environment as a "friendly atmosphere,"

or coworkers as being like "family." One woman referred to her project team as a "tight-

knit group of team members." One man boasted that he knew the names of all of his

coworkers' spouses. Still, comments by others such as their coworkers are "Midwestern

nice," may tell us more about the actual structure of informal ties, than the highly

cohesive view of the subdivision that other interviewees suggested. Indeed, the

"Midwestern nice" metaphor may capture the essence of the instrumental ties – ties that

are less about forging strong personal connections and more about pleasantries to gain

other rewards.

So do project teams provide access? Given that the QAP logistic regression

found a positive effect of joint team participation on having any informal tie, and that

gender was negatively associated with any informal ties, but not significantly associated

with friendship, then project teams provide access to men in power. The results generally

support the proteams view that structure determines the informal structure.   However,

these findings do not reject the preference argument entirely, since strategy was the key

predictor of the informal structure. The positive association between gender and ties to

other subdivisions indicates a gender preference when the ties in question are not

important for career advancement.   That is women, may have preferred emotional

support from other women outside of their subdivision or within their workgroups to

commiserate over workplace stresses and other issues that they may have thought only

another woman could understand. However, when it came to ties within their

subdivision, the results show that they chose those persons who could advance their

careers. In the next chapter, I examine whether these ties result in better work outcomes.

CHAPTER V

GENDER, STRUCTURE AND WORK OUTCOMES

<u>Chapter Overview</u>

In this chapter, I move beyond analysis of the structure of men's and women's

networks discussed in Chapter 4 to examine the impact of said structure on men's and

women's work outcomes. Hence this chapter centers on claim 4 of the proteams

argument that enhanced access and visibility from project team participation will reduce

gender inequality in the workplace. The results in Chapter 4 showed that strategy and

structure were important for predicting informal ties within Finco's back office, but

preference was important for ties to other subdivision. What then does the informal

structure observed in Chapter 4 imply for men's and women's work outcomes?

This chapter addresses the above question by examining the effects of gender,

team participation and the informal structure on men's and women's work outcomes.

First, I examine gender differences on three manifest work outcomes: involuntary

turnover (layoffs), increase in earnings and promotions since the time of the baseline

interview. Later, I examine gender differences on five attitudinal variables also measured

at time 2 including perceptions of job autonomy, job security, mobility and leadership

opportunities, job satisfaction, and commitment. I conclude with a discussion of the

findings and general implications.

<u>Method</u>

This chapter used data from the baseline survey, the follow-up survey and the

post-restructuring supplemental data. As noted in Chapter 2, I obtained additional

information from Finco management at the completion of the restructuring that had been

ongoing during data collection and beyond. This data reflected additional layoffs, promotions and pay increases. The data also included new hires. Data on new hires have been omitted, since they were not in the baseline survey and had missing values on all other measures used in the study. However, data for persons already in the survey were integrated into the follow-up survey. All outcome variables were drawn from the follow-up survey and the supplemental data. Thus outcomes signify changes on a given measure since the baseline survey. In addition to previous independent variables, I added two measures of centrality within the informal structure. I also included a binary variable for having ties to other subdivisions. Because the chapter analyzed employees' work outcomes, all analyses are done at the individual level. To capture greater variability in the effect of team participation, I used the number of project teams instead of the binary variable for team participation. The follow-up survey only included 73 respondents, however, because of the supplemental data for promotion, pay increases and layoffs, all initial 118 respondents have valid values on these measures. This number was reduced to 72 in multivariate analysis of these three measures due to missingness on correlates. Missing values on attitudinal measures reduced the sample size to 55 respondents for those measures. A detailed list of the items used to measure the attitudinal measures is available in Appendix Table A2.

Dependent variables

Pay increase since the last survey. This was a binary measure reflecting whether an employee was given a pay increase since the baseline survey.

Promotion since the last survey. This was a binary measure indicating if an employee had been promoted since the baseline survey.

Layoffs since the last survey. This measure was constructed from the updated information received from the management following the restructuring. It was a binary measure indicating whether persons who were employed during the study had since been laid-off.

Job satisfaction. Job satisfaction was tapped using five indicators; each measured on a five point Likert scale. Employees answered in agreement (disagreement) with the following statements. "I find real enjoyment in my job." "I feel dissatisfied with my current job." "My job is interesting." "I am fairly well satisfied with my current job." "I look forward to going to work each day." A job satisfaction variable was constructed from the averages of these five statements (alpha=.91).

Job commitment. Job commitment was assessed using a single question. Respondents were asked to indicate on a five point Likert scale, whether they agreed or disagreed with the following statement: "I would turn down another job that offered more pay to stay at this company."

Perception of mobility and leadership opportunities. Respondents were asked to indicate agreement with seven statements capturing various dimensions of perceptions for mobility and fairness of remuneration. Question include: "I am satisfied with my opportunities for promotions." "I am satisfied with my opportunities to take leaderships roles within the organization." "I have little or no chance of moving up in this company." "My opportunities for advancement are high." "A scale was constructed using the average of these four items (alpha=.87).

Job autonomy. Job autonomy assessed how much control workers felt they had over their work. It consisted of two indicators: "I can work independently" and " "I can decide how my daily work is organized," (alpha = .90).

Job security. Job security consisted of three indicators: "I feel secure about my job," "I am concerned about job security," and "there is a good chance I will lose my job in this economy," (alpha =.82).

Independent variables

Bonacich (1972) indegree and outdegree centrality. I used Bonacich's (1972) formulation of degree centrality to calculate centrality scores for the outdegree (the number of nominations sent by ego to others) and indegree (the number of nominations ego received from others) informal networks separately. Bonacich (1972) centrality algorithm calculates ego's centrality by weighting the overall centrality of persons with ties to ego as well, not just ego's direct ties as in earlier centrality calculations. Substantively, Bonacich indegree centrality measures egos prestige or popularity and outdegree measures ego's influence.

Analytic Strategy

I began by examining the bivariate relationship between gender and each of the three manifest work outcomes. Second, I used logistic regression to estimate the effects of gender, team participation and network centrality on pay increase, promotion and layoffs. I estimated four regression models for each of these dependent variables. Model 1 examined the main effect of gender, model 2 added the centrality measures, model 3 added position, team participation and ties to other subdivision, and model 4 included the human capital control variables. I use OLS regression to predict the effect of gender, team participation and centrality on the attitudinal measures. However, because missing values resulted in a further reduction of the sample size, I did not include the human

capital control variables, since additional predictors resulted in unstable findings.

Descriptive statistics for this chapter are presented in Table 14.

Table 14. Descriptive Statistics (N=72 respondents)

Variables	Mean	Std. Dev	Min	Max
Layoffs	0.39	0.49	0.00	1.00
Promotion	0.17	0.38	0.00	1.00
Pay increase	0.19	0.40	0.00	1.00
Female	0.56	0.50	0.00	1.00
In-degree centrality	10.86	0.21	10.63	11.55
Out-degree centrality	4.74	6.96	0.00	15.48
Ties to other subdivision	0.25	0.44	0.00	1.00
Position	2.38	1.24	1.00	5.00
Number of project teams	1.15	1.15	0.00	3.00
Level of education	4.13	0.58	2.00	5.00
Years of prior experience	3.79	2.02	0.00	6.00
Tenure in years	5.10	3.23	1.00	10.00
Attitudinal measures: (N=55)				
Job autonomy	4.53	0.67	1.00	5.00
Job security	2.95	0.82	1.00	5.00
Mobility and leadership opportunities	3.25	0.83	1.25	5.00
Job satisfaction	3.67	0.76	1.80	5.00
Job commitment	3.53	0.71	2.00	5.00

Effects of Gender and Structure on Work Outcomes

Gender Differences in Work Outcomes

The bivariate analyses for gender and each of the three manifest work outcomes

are presented in Table 15. According to Table 15, there were a total of 39 layoffs, 17

promotions and 21 pay increases. However, the only statistically significant difference

between men and women was in pay increase.   Fifty-seven percent or 12 of the 21 pay

increases went to men, and 43% (9 pay increases) went to women. The Pearson chi-square value was 3.54, p=.03 in a one-tailed test. Slightly fewer men were laid off, and more men received promotions than women, but those differences were not sufficiently large to be statistically significant at p<.05. The finding that more men got pay increases is consistent with the proteams view that, more often than not, men have better work outcomes than women. However, these findings do not reflect the effects of the formal and informal structure. I examine those effects in the multivariate analysis that follow.

Table 15. Gender by Pay, Promotion and Layoffs since the First Survey

Function	Total	Men %	Women %	χ^2	
Pay increase	21	57	43	3.5	*
Promotion	17	53	47	1.6	
Layoffs	39	49	51	2.3	
N	118	46	72		

*** p<.001, ** p<.01, * p<.05 one-tail test

Logistic Regression Predicting Pay Increase

Table 16 presents the results of the logistic regression analysis predicting pay increases since the baseline survey. In model 1, gender had no statistically significant effect on pay increase, but the sign of the coefficient was negative. In model 2, only indegree centrality – ties received from others – had a statistically significant effect on pay increase. Employees with high indegree centrality were more likely to get pay increases than employees who were less popular. The inclusion of ties to other subdivisions, position and the number of project teams in model 3 resulted in an even larger coefficient for indegree centrality and a significant positive coefficient for

outdegree centrality. Specifically, the coefficient for the effect of indegree centrality

increased from 3.64 to 4.45; it was significant at $p<.05$ in a one-tail test. Of the three

structural variables introduced in model 3, only position had a statistically significant

effect on pay increase. Group leads were significantly more likely to get a pay increase

since the baseline survey, in comparison to entry-level professionals. The effect of

indegree and outdegree centrality on pay increase remained virtually unchanged with the

inclusion of the human capital control variables in model 4, but the effect of ties to other

subdivisions became significant, while the significant effect of position was erased.

Thus, with all covariates in model 4, three variables had significant positive effects on

pay increase since the baseline survey. First, employees with high indegree centrality

were 86 times ($\exp^{(b=4.46)}$, $p<.05$ in a one-tailed test) more likely to get a pay increase

since the baseline survey, than employees with low indegree centrality. Similarly, persons

with high outdegree centrality were 1.2 times ($\exp^{(b=.15)}$, $p<.05$ in a one-tailed test) more

likely to get pay increases than those with low outdegree centrality. Finally, employees

with at least one tie to someone in another subdivision were 6 times ($\exp^{(b=1.82)}$, $p<.05$ in a

one-tailed test) more likely to get pay increases than those who did not have ties to other

subdivisions. None of the control variables introduced in model 4 had a statistically

significant effect on pay increase. Gender had a relatively large negative coefficient, but

it was not statistically significant. The number of project teams had a positive

coefficient, but that too was not statistically significant. The lack of statistical

significance on gender and team participation could be a result of low statistical power

due to sample size. However, as they are, the results of Table 16 support hypothesis 3a.

That is, high centrality increased the likelihood of obtaining a pay increase since the

baseline survey.

Table 16. Logistic Regression Predicting Pay Increase since the First Survey (N=72)

Variables	Model 1 b	Model 1 S.E.	Model 2 b	Model 2 S.E.	Model 3 b	Model 3 S.E.	Model 4 b	Model 4 S.E.
Female	-0.35	0.60	-0.28	0.64	-0.65	0.82	-0.71	0.86
Indegree centrality			3.64	1.49*	4.45	2.03*	4.46	2.23*
Outdegree centrality			0.06	0.04	0.12	0.06*	0.15	0.08*
Ties to other subdivision					1.56	0.95	1.82	1.05*
Senior Professional					-1.24	1.49	-1.31	1.55
Group Lead					1.82	1.07*	1.79	1.13
Upper Management					1.34	1.02	1.59	1.13
Number of project teams					0.33	0.36	0.41	0.38
Level of education							-0.98	0.78
Years of prior experience							0.00	0.20
Years of tenure							-0.01	0.14
Constant	-1.23	0.43**	-41.32	16.38*	-51.95	22.29*	-48.47	24.67*
Pseudo R^2	0.00		0.11		0.31		0.33	
Log likelihood	-35.30		-31.45		-24.57		-23.68	

*** p<.001, ** p<.01, * p<.05, one-tail test

Logistic Regression Predicting Promotions

Results of the logistic regression analysis predicting promotions since the baseline

survey are presented in Table 17. Similar to Table 16, the main effect of gender was not

statistically significant in model 1. However, the sign of the coefficient was positive in

Table 17. In model 2, both indegree and outdegree centrality were statistically significant

and positive, with high indegree centrality indicating substantially higher odds of

promotion in comparison to low indegree centrality. Again, the inclusion of position,

number of project teams and ties to other departments, resulted in larger coefficients for both centrality measures as in Table 16.   However, of the three variables introduced in model 3, only the number of project teams had a statistically significant coefficient for the effect on promotion. Specifically, persons who participated in three or more project teams were 2 times ($\exp^{(b=.73)}$, $p<.05$ in a one-tailed test) more likely to get promoted than those who participated in no project teams. This pattern held with the inclusion of the control variables in the final model. Three measures had significant effects on the likelihood of receiving a promotion since the first survey. High indegree centrality, outdegree centrality and the number of project teams employees participated in all increased the odds of being promoted since the baseline survey. Gender had no significant effect on the likelihood of being promoted. Hence, the results of Table 17 support hypothesis 3a and partly supports hypothesis 3b, since team participation had significant positive effect on promotion net of all other covariates.

Table 17. Logistic Regression Predicting Promotions since the First Survey (N=72)

Variables	Model 1 b	Model 1 S.E.	Model 2 b	Model 2 S.E.	Model 3 b	Model 3 S.E.	Model 4 b	Model 4 S.E.
Female	0.07	0.64	0.20	0.69	-0.26	0.90	-0.16	0.94
Indegree centrality			4.04	1.62*	5.07	2.27*	5.70	2.64*
Outdegree centrality			0.09	0.05*	0.13	0.07*	0.18	0.08*
Ties to other subdivisions					0.60	0.99	1.09	1.13
Senior Professional					-1.76	1.65	-1.92	1.75
Group Lead					1.68	1.11	1.78	1.19
Upper Management					0.33	1.12	0.58	1.20
Number of project teams					0.73	0.40*	0.79	0.42*
Level of education							-0.89	0.86
Years of prior experience							0.12	0.21
Years of tenure							-0.05	0.15
Constant	-1.65	0.49**	-46.34	17.86**	-59.14	25.03*	-63.31	29.00*
Pseudo R^2	0.00		0.15		0.32		0.35	
Log likelihood	-32.43		-27.65		-21.98		-21.17	

*** p<.001, ** p<.01, * p<.05 one-tail test

Logistic Regression Predicting Layoffs

Table 18 presents the results of the logistic regression predicting layoffs since the baseline survey. Unlike pay increase and promotion, gender had a significant negative effect on the likelihood of being laid off. In model 1, women were 61 percent ($\exp^{(b=-.95)}$-1, p<.05 in a one-tailed test) less likely to be laid-off in comparison to men. This gender gap increased slighlty to b=-1.19 (p<.05) or 70 percent less likely to be laid-off in model 2. However, of the two centrality measures, only indegree centrality was statistically significant in model 2.   In model 3, the inclusion of the number of project teams reduced the effects of gender and indegree centrality slightly. Participation in three or more project teams in model 3 reduced the likelihood of being laid-off by 43 percent ($\exp^{(b=-}$

$^{.56)}$-1, p<.05 in a one-tailed test). With all covariates in model 4, only indegree centrality

and the number of project teams remained statistically significant predictors of the

likelihood of being laid-off from work. High indegree centrality reduced the likelihood

of layoffs by 98 percent ($\exp^{(b=-3.79)}$-1, p<.05 in a one-tailed test), net of all other

covariates. Participation in three or more project teams reduced the likelihood of layoffs

by 48 percent ($\exp^{(b=-.66)}$-1, p<.05 in a one-tailed test), net of all other covariates.

However, the effect of gender became nonsignificant in model 4, but the coefficient was

still moderately large and negative. Similar to Table 17, the results of Table 18 support

hypothesis 3a and partially support hypothesis 3b.

Table 18. Logistic Regression Predicting Layoffs since the First Survey (N=72)

Variables	Model 1 b	S.E.	Model 2 b	S.E.	Model 3 b	S.E.	Model 4 b	S.E.
Female	-0.95	0.50*	-1.19	0.55*	-1.06	0.61*	-0.89	0.64
Indegree centrality			-4.03	1.63*	-3.56	1.73*	-3.79	1.86*
Outdegree centrality			0.03	0.04	0.02	0.04	0.03	0.04
Ties to other subdivisions					0.33	0.69	0.68	0.77
Senior Professional					-0.76	0.74	-0.61	0.79
Group Lead					-0.14	0.80	0.03	0.84
Upper Management					0.17	0.87	0.52	0.97
Number of project teams					-0.56	0.29*	-0.66	0.32*
Level of education							-0.49	0.51
Years of prior experience							0.14	0.16
Years of tenure							-0.15	0.10
Constant	0.06	0.36	43.70	17.70*	39.37	18.78*	43.72	20.62*
Pseudo R^2		0.04		0.13		0.18		0.23
Log likelihood		-46.26		-41.93		-39.44		-37.27

*** p<.001, ** p<.01, * p<.05 one-tail test

Summary out Work Outcome Findings

To summarize, the results of Tables 16, 17 and 18 above support hypothesis 3a that network centrality will determine the work outcomes of men and women at Finco. Both indegree and outdegree centrality were positively associated with promotion and pay increase since the baseline survey. However, only indegree centrality reduced the likelihood of being laid-off during the period of restructuring. In support of hypothesis 3b, participation in three or more project teams increased the likelihood of promotion relative to participating in no project teams, and reduced the likelihood of being laid-off during the restructuring at Finco. However, position had no significant effect on any of the three outcomes variables, independent of other covariates. Unexpectedly, being female reduced the likelihood of being laid-off in the first three models in Table 18, but the effect did not hold in the final model. However, gender was not associated with either pay increase or promotion. Hence, hypothesis 3c was not supported in this analysis.

Gender, Teams and Employee Attitudes

In this section I examined the effects of team participation on five attitudinal outcomes: employees' perception of job autonomy, job security, and mobility and leadership opportunities, overall job satisfaction and commitment. Each of the five attitudinal measures consisted of multiple indicators measured on five-point Likert scales, with 5 being highest. A list of all indicators comprising each scale is available in Appendix Table A2. First, I used t-tests to compare differences in mean responses for men and women on each of the five attitudinal measures. Then, I then used OLS

regression to examine the effects of gender, team participation and centrality on each of the attitudinal outcomes.

The results of the t-tests for mean differences are presented in Table 19. Of the five attitudinal measures, only two had statistically significant differences in the mean responses of men and women. Women's mean perception of their opportunities for mobility and leadership at Finco was 3.05 in comparison to 3.58 for men on a scale of one to five, with five being highest. This difference was statistically significant at p=.009 in a one-tailed test. Similarly mean job commitment for women was 3.39 versus 3.75 for men and statistically significant at p=.032. There were small differences in perceptions of job security, autonomy and job satisfaction, but those were not statistically significant in the t-tests.

Table 19. T-test of Mean Gender Differences in Attitudes[1]

	Males		Females	
Variables	Mean	S.E	Mean	S.E
Job autonomy	4.41	0.20	4.60	0.08
Job security	3.13	0.20	2.83	0.13
Mobility and leadership opportunities	3.58	0.19	3.05	0.13 **
Job satisfaction	3.83	0.14	3.57	0.14
Job commitment	3.75	0.14	3.39	0.12 *
N		21		34

[1] Scales values range from 1 to 5; $**p<.01$, $*p<.05$, one-tail test

I examined each attitudinal outcome further using OLS regression analysis, but I present the regression analysis for job commitment and perception of mobility and leadership opportunities only because there were no statistically significant effects on any

of the covariates predicting the remaining three attitudinal outcomes. As I stated earlier, because the sample size is reduced substantially due to missing values on the attitudinal measures, I reduced the number of predictors in the model to improve model estimation.

OLS Regression Predicting Job Commitment

The results of the OLS regression models predicting job commitment are presented in Table 20. In model 1 the main effect of gender was negative. In comparison to men, being female was associated with a 30 percent (exp $^{(b=-.36)}$-1, p=.029, in a one-tail test) decline in job commitment. The number of project teams had no effect on job commitment in model 2, thus the effect of gender remained unchanged. Neither indegree nor outdegree centrality was associated with job commitment in model 3, but the significant negative effect of being female was reduced slightly. Since gender was the only significant predictor of job commitment, the results of Table 20 support hypothesis 3c. That is, gender had a significant effect on job commitment, independent of other covariates in the model.

Table 20. OLS Regression Predicting Job Commitment (N=55 respondents)

Variables	Model 1		Model 2		Model 3	
	b	S.E.	b	S.E.	b	S.E.
Female	-0.36	0.19*	-0.38	0.19*	-0.34	0.20*
Number of project teams			0.11	0.08	0.09	0.09
In-degree centrality					0.63	0.44
Out-degree centrality					0.00	0.01
Constant	3.76	0.15***	-3.65	4.86	-4.41	4.92
R^2		0.06		0.10		0.14

*** p<.001, ** p<.01, * p<.05; one-tail test

OLS Regression Predicting Perceived Mobility

Table 21 presents the results of the regression model predicting perception of

opportunities for mobility and leadership at Finco Investment Management. Similar to

the results predicting job commitment, only gender predicted perceptions of mobility and

leadership. In model 1, being female decreased the likelihood of perceiving high

opportunities for mobility and leadership by 41 percent (exp $^{(b=-.53)}$-1, p<.05 in a one-tail

test). This value declined slightly in model 3. In model 3 being female was associated

with a 38 percent (exp $^{(b=-.36)}$-1, p=.029, in a one-tail test) decline in perception of high

mobility opportunities. Hence similar to the results of job commitment, the results of

Table 21predicting perceptions of mobility opportunities at Finco support hypothesis 3c

that gender differences would persist net of other covariates.

Table 21. OLS Regression Predicting Mobility (N=55 respondents)

Variables	Model 1		Model 2		Model 3	
	b	S.E.	b	S.E.	b	S.E.
Female	-0.53	0.22 *	-0.52	0.23 *	-0.49	0.23 *
Number of project teams			-0.07	0.22	-0.05	0.10
In-degree centrality					0.61	0.53
Out-degree centrality					0.00	0.02
Constant	3.58	0.17 ***	3.61	0.20 ***	-2.99	5.71 ***
R^2		0.10		0.10		0.12

*** p<.001, ** p<.01, * p<.05; one-tail test

Discussion

This chapter centered on claim 4 of the proteams argument that access and

visibility will likely reduce gender inequality in work outcomes. Hypothesis 3a asserted

high centrality in the informal structure would increase gender increase pay and promotions and reduce the likelihood of involuntary turnover.   The results supported this hypothesis. Persons who had high indegree centrality were promoted, received pay increases and were least likely to be laid-off, during the restructuring at Finco. High outdegree centrality was associated with increased pay and promotions, but not layoffs. Surprisingly, gender had no significant effect on pay increases in any of the logistic regression models, despite showing a significant effect in the bivariate analysis. While gender was not expected to influence the work outcomes independently of the structural measures, I expected to see gender differences prior to introducing structural measures. Also, the coefficient for gender was moderately large in Table 16 and Table 18, despite being nonsignificant. Given the sample size in the regression analysis is only 72, it is possible that there was not sufficient statistical power to find gender differences, even if those differences are actually present.

I explored this possibility using Spearman rank correlation for small sample analysis (results not shown), but gender was also uncorrelated with the dependent variables in those models as well, which the exception of the gender-layoffs correlation. However, even more surprising than the lack of a gender association for pay and promotion, was the finding that women were less likely to be laid-off in Table 18. I conducted some additional analyses with fewer covariates to tease out this effect. Those results available in Appendix Table A3, showed that years of tenure was the variable which explained the gender effect on layoffs. Women had longer tenure, and tenure was the only single measure to attenuate the gender difference in layoffs. However, the effect of tenure was suppressed by more powerful predictors in model 4 of Table 20.

I also hypothesized that project team participation and workplace position would have some residual direct effect on the three work outcomes. This hypothesis was partially supported in models predicting promotions and layoffs. Persons who participated in more project teams were less likely to be laid-off and more likely to be promoted. Hence, project team participation had both a direct effect and an indirect effect by way of the informal structure on men and women's work outcomes. However, these patterns did not hold in the analysis of attitudinal measures. Only hypothesis 3c received support in the analysis of the two attitudinal measures. It is possible that changes in the formal and informal structure could have improved manifest work outcomes such as promotions and layoffs, but have no effect on attitudes. This may be especially true when some women are promoted and others are not. In fact, this explanation would be consistent with social psychology research dating back to Stouffer's (1949) seminal study of reference groups in the United States military. Because women may identify primarily with other women rather than men, tensions could result when some women, particularly those in self-managed teams, get promotions and other rewards and others do not get similar rewards. Alternately, the additional reduction in sample size on these measures may have resulted in very low statistical power, which would have made it very difficult to observe any significant effects. However, the fact that the gender effect was present in the bivariate analysis in Table 19 provides some confidence that it was a true gender effect.

A third possibility for the gender effect on job commitment and mobility may simply be the effect of organizational restructuring on morale. The uncertainty at Finco was quite high after the first layoffs were announced. This may have been especially

difficult since no one had been laid-off in that division in more than fifteen years. However, this begs the question as to why a gender effect and not simply reduced morale for both men and women equally. Afterall, both men and women were laid-off. Does this mean that women experienced the adverse effects of restructuring more severely? If so, then this is could further highlight the fact that women at Finco were generally in lower-ranking positions than men, which could have resulted in more anxiety about their future with the company.

In sum, the results in this chapter provided some support for the proteams argument. Both the formal and informal structure had positive impacts on employee work outcomes. However, the findings also have limitations. First, the sample size was small and missing data on some variables reduced the analytical sample further. This likely reduced statistical power, limiting the number of variables that could be entered in a model simultaneously. Second, this was a case study of one division within a much larger company, thus the findings may not be generalizable to other firms. Next, while the financial turmoil may have been good for observing changes in the company within a relatively short period of time, it may have simultaneously biased employee attitudes by reducing morale, which may have been reflected in their attitudes towards their work.

CONCLUSION

Because it has been argued that team-structured organizations may hold the key to reducing ascriptive inequality in the workplace (Acker 2006), I endeavored to uncover if and how self-managing teams impact the work outcomes of men and women differently. I conducted a case study of employees in the investment operations and account management subdivision, also known as the back office, of an insurance and asset management company dubbed Finco Asset Management. In the midst of an ongoing global economic crisis that pummeled major players in the financial services sector, I observed as Finco undertook various strategies to mitigate losses and avoid insolvency – a fate that many other financial services companies, including giants such as Lehman Brothers, Bear Stearns and Countrywide Financial, had already suffered. Finco's survival strategies included mergers, subsidiary consolidation and the elimination of some positions. Consequently, some employees were laid off, some received pay increases and some were promoted to new positions. But, what factors determined who got what in an organization such as Finco?

Research on workplace inequality often show that gender plays a role in how rewards are distributed in the workplace, including promotions and pay increases. However, scholars have long been divided over whether it is gender or the structure of the workplace that produces gender inequality. Changes in the structure of the workplace that afford workers more flexibility and control over their work, including the use of self-managed teams, are viewed by many as progressive measures to reduce gender inequality. However, empirical research in support of the actual benefits of self-managed teams for women has been in short supply. As one of many companies that utilized self-

managing project teams, Finco allowed for examination of the effects of the team structure on employees work outcomes. However, the financial crisis and the fact that team participation was selective made Finco the ideal case for isolating the effects of gender, teams and nonteam structures on men's and women's work outcomes.

To test how gender and the workplace structure affected men and women at Finco, I drew on social network theory of social capital and proposed competing hypotheses about how team participation may affect whether employees were laid-off, promoted or received pay increases. The social capital argument asserted that self-managing teams reduced gender inequality by eliminating the gender segregation of tasks and positions. That is, where gendered-tasks group men and women separately, teams, which require persons with diverse skills, draw both men and women from their respective workgroups and place them into cross-functional, mixed-gender teams. This extends women's social networks to influential men, which improves their social capital and ultimately their work outcomes. Hence, from the social capital standpoint, the key benefit of cross-functional, project teams is that they expose otherwise segregated workers to networking opportunities with persons of influence within a company.

I found support for social capital approach. First, the results of Chapter 3 showed that workgroups, the nonteam structure at Finco, were segregated by gender such that women worked mostly with other women. Self-managing project teams, however, were not segregated by gender. In Chapter 4, I found that position, workgroup and the perceived importance of another for one's career advancement determined informal ties. Tie importance attenuated the effect of project team participation which suggests that employees were strategic about forming ties with influential persons in project teams.

In Chapter 5, I found the informal structure, particularly indegree centrality – a measure of prestige, and outdegree centrality – a measure of influence, were key predictors of promotions and pay increases. Indegree centrality alone determined layoffs, however. Thus consistent with the social network theory of social capital, project teams reduced gender segregation, provided access to important informal networks and the informal networks influenced employee work outcomes.

While teams improved women's work outcomes, gender was not entirely irrelevant at Finco. Women held fewer upper management positions than men. Consequently, women were less likely to have same-sex ties when tie importance was included in the analysis. This means that even if women preferred to have same-sex ties, they had few options, if career advancement was also important to them. This may explain why women had more same-sex ties to other subdivisions. Consistent with past research discussed earlier, these external ties which were not associated with career advancement, may have provided women with a support outlet that was not available to them in teams, since team ties were instrumental ties. Still, because team participation was selective at Finco, gender inequality in upper management likely reflects the hierarchy of the workgroup structure, not teams. It is possible that as more women in project teams benefit from the positive association between team participation and promotion, gender inequality in upper management will be reduced.

So does the increased use of self-managed teams signal an end to gender inequality in the workplace? The results of this study showing both positive direct and indirect benefits of team participation on women's work outcomes are promising, but issues of team selection, the high female composition of Finco's workforce and gender

differences in attitudes suggest cautious optimism. First, the process of team formation at Finco may not reflect team formation practices at other companies, and if it does, the process itself is somewhat problematic. The criteria for team member selection discussed in Chapter 3 – availability, subject matter expertise, employee personal style, leadership development potential and managers' recommendations – were largely subjective and imprecise. Thus instead of granting a large cross-section of employees access to self-managed team, the same employees were found in multiple teams. An important implication of this fact is that persons who participated in teams at Finco may have been different in some respect from those who did not, prior to participating in project teams. These persons may have already been the popular employees that everyone liked, which could explain the large effect of indegree centrality observed in this study. I also pointed out that Finco was a majority female subdivision, which could mean that true gender competition was minimal at best. Finally, the uniqueness of economic recession and the small sample size, particularly on the attitudinal measures make it rather difficult to generalize Finco's case to other firms.

Still, this study provides important theoretical insight into how self-managed teams affect men's and women's work outcomes. The finding that teams matter directly and indirectly through informal ties contributes to theoretical understanding of the relationship between gender, teams and work outcomes. Previous studies have looked only at team participation, not the simultaneous effect of team participation and social networks. Also, to my knowledge, this study is the first of its kind to examine the effects of team participation within a company that uses both team and nonteam organizational structures. Hence, while the analysis of a single firm limits the overall generalizability of

the study, it is less susceptible to issues of firm effects commonly observed in studies of teams in multiple firms. By studying both types of organizational strategies within a single firm, organizational policies that affect the implementation of these policies are held constant, thereby reducing firm effects. Hence to some extent, this study may even approach the status of quazi a field experimental test of team and nonteam structures in work organization.

APPENDIX A

APPENDIX TABLES

Table A1. QAP Negative Binomial Predicting Number of Ties
(N=72 respondents, 5182 dyads)

Variables	Model 1 b	Model 1 S.E.	Model 2 b	Model 2 S.E.	Model 3 b	Model 3 S.E.	Model 4 b	Model 4 S.E.
Female	0.08	0.27	0.03	0.25	0.01	0.25	-0.25	0.26
Different position			-0.13	0.12	-0.14	0.12	-0.57	0.13 ***
Shared workgroup			2.54	0.31 ***	2.55	0.31 ***	1.08	0.28 *
Joint project team participation			1.39	0.35 **	1.36	0.36 **	-0.18	0.35
Difference in level of education					-0.22	0.21	-0.47	0.23 *
Difference in years of tenure					0.06	0.03 *	0.05	0.03
Tie importance for career							1.43	0.09 ***
Constant	-3.59	0.19	-4.23	0.24 *	-4.44	0.30 *	-4.93	0.31 ***
Pseudo R^2		0.00		0.07		0.08		0.44
Log likelihood		-552.84		-512.79		-509.38		-309.59

*** p<.001, ** p<.01, * p<.05, one-tail test

Table A2. Scales for Attitudinal Outcomes

Job autonomy (alpha=.90)
  I can work independently
  I can decide how my daily work is organized
Job security (alpha=.82)
  I feel secure in my job

  I am concerned about my job security
  There is a good chance I will lose my job in this economy
Job satisfaction (mean=3.67, .81)
  I find real enjoyment in my job
  My job is interesting
  Dissatisfied with my current job
  My work is stressful
  Fairly well satisfied with my job
  I come home exhausted
  I look forward to going to work each day
Mobility and leadership opportunities (alpha=.87)
  I am satisfied with my promotion opportunities
  I am satisfied with opportunities to take on leadership roles
  I have little or no chance of moving up in the company
  My opportunities for advancement are high
Job commitment (alpha=.83)
  I am proud to work for this company
  I would turn down a higher paying job at another firm
  I rarely seek information about other jobs
  I will likely search for a new job next year
  I plan to leave this job within a year
  I feel like an important part of this company

Table A3. Descriptive Statistics (N=76 respondents; 5775 dyads)

Variables	Mean	Std. Dev	Min	Max
Network ties				
Acquaintances	0.002	0.04	0.00	1.00
Confidants	0.002	0.04	0.00	1.00
Friends	0.005	0.07	0.00	1.00
Nonwork-related /social	0.014	0.12	0.00	1.00
Any informal tie	0.016	0.13	0.00	1.00
Advice network	0.001	0.03	0.00	1.00
Mentorship network	0.001	0.04	0.00	1.00
Gender & team participation				
Non-participating female	0.248	0.43	0.00	1.00
Participating male	0.241	0.43	0.00	1.00
Participating female	0.263	0.44	0.00	1.00
Human capital & joint characteristics				
Absolute difference in education	0.510	0.67	0.00	3.00
Absolute difference in years of tenure	3.166	3.23	0.00	10.00
Shared ties to other departments	0.010	0.10	0.00	1.00
Shared work group ties	0.069	0.25	0.00	1.00
Relationship characteristics				
Time known	0.075	0.52	0.00	6.00
Importance of informal tie	0.107	0.63	0.00	5.00

APPENDIX B

PROJECT TEAM SURVEY

You have been invited you to complete this survey because you are an employee of the company being studied. The purpose of this study is to understand if and how social networks, that is, patterns of interpersonal relationships between employees in the organization, lead to differential outcomes for employees. The study is open to all employees in your department; however, individual participation is completely voluntary. While the survey is open to all persons in your department, your participation in this study is completely confidential. Your employer will not know if you participated and any identifying information collected about you and other employers will not be viewed by anyone other than the researcher. I encourage you to answer all questions as accurately as you can. However, you may terminate participation in this study at any time and for any reason. This study is being conducted as a part of the dissertation research of Vernon A. Woodley, a PhD candidate in the Department of Sociology at the University of Iowa. The survey should take no more 25 minutes to complete.

Section I

Directions: The first section of the survey asks about your demographic characteristics. Please answer the questions by filling in the appropriate responses.

1) What is your gender?
      a. ____ Male
      b. ____ Female
      c. ____ Refused
      d. ____ Don't know

2) How old are you?
      a. _____ (*Please write your age*)
      b. _____ Refused

3) Are you of Hispanic origin?
      a. _____ Yes
      b. _____ No
      c. _____ Refused
      d. _____ Don't know

4) What race do you consider yourself? Check all that apply.
      a. _____ African-American\Black
      b. _____ Asian-American
      c. _____ Non-Hispanic white
      d. _____ Native American
      e. _____ Pacific Islander
      f. _____ Other, specify_____
      g. _____ Refused

h. _____ Don't know

5) Were you born in the U.S.A?
    a. _____ Yes
    b. _____ No
    c. _____ Refused
    d. _____ Don't know

Now I am going to ask you some questions about your education and work experience.
Please answer as accurately as you can.

6) What is the highest level of education you have completed?
    a. _____ Less than high school diploma
    b. _____ High school diploma or equivalent
    c. _____ Some college or associates degree
    d. _____ Technical or vocational degree
    e. _____ Four year college degree
    f. _____ Professional or post graduate degree
    g. _____ Refused
    h. _____ Don't know

7) When did you complete your highest level of education?
    a. Year _____; Month _____
    b. _____ Refused
    c. _____Don't know

8) When did you start working at your current job?
    a. Year _____; Month _____
    b. _____ Refused
    c. _____Don't know

9) Have you worked for another department in this company prior to starting your current job?
    a. _____ Yes
    b. _____ No
    c. _____ Refused
    d. _____ Don't know

If yes to question 9 move on to question 10, else skip to question 11

10) When did you start working at your first job in this company?
    a. Year _____; Month _____
    b. _____ Refused
    c. _____Don't know

11) Did you have another fulltime job *prior to* starting work at this company?

a. _____ Yes
b. _____ No
c. _____ Refused
d. _____ Don't know

If yes to question 11 move on to question 12, else skip to question 13

12) Was your work, prior to joining this company, in the same field as your current job?
   a. _____ Yes
   b. _____ No
   c. _____ Refused
   d. _____ Don't know

13) Have you pursued any formal education since you started working for this company?
   a. _____ Yes
   b. _____ No
   c. _____ Refused
   d. _____ Don't know

If yes to question13 move on to question 14, else skip to question 15

14) What was the highest level of education you completed *prior to* working for this company?
   a. _____ Less than high school diploma
   b. _____ High school diploma or equivalent
   c. _____ Some college or associates degree
   d. _____ Technical or vocational degree
   e. _____ Four year college degree
   f. _____ Professional or post graduate degree
   g. _____ Refused
   h. _____ Don't know

15) Are you currently enrolled in a degree program?
   a. _____ Yes
   b. _____ No
   c. _____ Refused
   d. _____ Don't know

If yes to question 15 move on to question 16, else skip to question 17

16) What degree are you currently working towards?
   a. _____ High school diploma or equivalent
   b. _____ Some college or associates degree
   c. _____ Technical or vocational degree
   d. _____ Four year college degree
   e. _____ Professional or post graduate degree

f. _____ Refused

g. _____ Don't know

17) When do you expect to complete your degree program?

    a. Year _____; Month _____

    b. _____ Refused

    c. _____Don't know

18) Since joining this company, have you received any on-the-job training?

    a. _____Yes

    b. _____No

    c. _____Don't know

    d. _____Refused

19) What is your current yearly income from your job?

    a. ____ Less than 30,000

    b. ____ 30,001 – 40,000

    c. ____ 40,001 – 50,000

    d. ____ 50,001-- 60,000

    e. ____ 60,001 – 70,000

    f. ____ 70,001-- 80,000

    g. ____ 80,001 – 90,000

    h. ____ More than 90,000

    i. ____Refused

    j. ____Don't know

20) There are a number of ways people hear about jobs – such as from ads, employment agency, other people. Could you tell me how you found out about your current job? Please check all that apply.

    a. ____Heard from someone who already worked here

    b. ____From relatives

    c. ____From friends

    d. ____From acquaintances

    e. ____From newspaper ad

    f. ____Through employment agency

    g. ____From a recruiter of this employer

    h. ____Just came here and asked for work

    i. ____Other, specify _____

    j. ____Refused

    k. ____Don't know

21) Have you ever been promoted by your current employer?

    a. ____Yes

    b. ____No

    c. ____Refused

    d. ____ Don't know

22) How many times have you been promoted by your current employer?
      a. _____ (Please w*rite the actual number of times promoted*)
      b. _____Refused
      c. _____Don't know

23) When was your last promotion?
      a. Year _____; Month _____
      b. _____ Refused
      c. _____Don't know

24) How important to you is the opportunity to be promoted?
      a. _____Very important
      b. _____ Important
      c. _____ Somewhat important
      d. _____ Not at all important
      e. _____ Refused
      f. _____ Don't know

25) Are there regular procedures for promoting people in your job to a higher level?
      a. ____Yes
      b. ____No
      c. ____Refused
      d. ____ Don't know

26) Do you think being a (women/ man) makes your promotion opportunities better or worse?
      a. ____Better
      b. ____Worse
      c. ____No effect
      d. ____Refused
      e. ____Don't know

27) Do you think your race\ethnicity makes your promotion opportunities better or worse?
      a. ____Better
      b. ____Worse
      c. ____No effect
      d. ____Refused
      e. ____Don't know

28) In general, how would describe relations between management and employees?
      a. ____Very good
      b. ____Good
      c. ____Neither good nor bad
      d. ____Bad

e. ____Quite bad
f. ____Refused
g. ____Don't know

29) In general, how would describe relations between coworkers/colleagues in your workplace?

a. ____Very good
b. ____Good
c. ____Neither good nor bad
d. ____Bad
e. ____Quite bad
f. ____Refused
g. ____Don't know

Section II

The next section of the survey is about your feelings towards your current job. For each of the statements below, please tick one box to show how much you agree or disagree that it applies to your job.

1. Feelings about my job

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am secure in my current job.					
I find real enjoyment in my job.					
My job is interesting.					
I feel dissatisfied with my current job.					
I am fairly well satisfied with my current job.					
I find my work stressful.					
I often come home from work exhausted.					
I look forward to going to work each day.					

2. Decision-making

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I can work independently.					
I can decide how my daily work is organized.					
I have no control over how I do my job.					
I have no control over what I do in my job.					
I can decide the time I start and finish work.					
My coworkers are supportive of my work.					

3. Feelings about the company

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am willing to work harder than I have to for the company I work for to succeed.					
I am proud to be working for this company.					
I would turn down another job that offered more pay to stay with this company.					
I rarely seek out information about other job opportunities.					
There is a good chance I will search for another job within the next year.					
I plan to leave my job within the next year.					
I feel like I am an important part of the company.					

4. Opportunities and personal development

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am satisfied with my opportunities for promotions.					
I am satisfied with my current salary.					
I feel like my salary is reflective of my work.					
I am satisfied with my employee benefits.					
I am satisfied with my opportunities for bonuses.					
I am satisfied with my opportunities to take on leadership roles within the organization.					
My job gives me a chance to improve my skills.					
I have little or no chance of moving up in this company.					
My opportunities for advancement are high.					

5. Perceptions of project teams

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Team work is important to the success of this company.					

I look forward to working in project teams.					
We can get more work done in project teams than when working alone.					
Project teams are mostly unproductive.					
I would rather work alone than in a project team.					
A few people do most of the work in project teams.					
All team members contribute equally to the task.					
I am satisfied with my opportunities to work on project teams.					
I often play leadership roles on project teams.					
I have very few opportunities to work on project teams.					
I am seldom given leadership roles on a project team.					

Section III

Directions: The questions in this section pertain to the list of names on the accompanying department roster. Please indicate your answer by listing the number next to the names of the people you nominate.

1. Who are the people with who you have had the most frequent and substantive contact over the last six months? Limit yourself to people with who you have had direct contact (not e-mail lists). Please enter the appropriate numbers next to the names on the roster under the Personal ID column heading, then answer the questions pertaining to each person identified. You may list up to fifteen (15) persons.

Personal ID #	Number of Years known?	Frequency of contact?			
		Daily	Weekly	Once monthly	Less than once monthly
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					

ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					

2. Here is a list of ways people are connected to each other. For each of the persons you identified above, please check the box(es) that completes the statement in the heading of the dialogue box, "This person is my ..…." Please check all the ways in which you are connected to each person.

Personal ID #	This person is my …. (*Check all that apply*)					
	Friend	Advisor	Supervisor	Co-worker	Acquain-tance	Other (*specify*)
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						
ID # _____						

3. How close would you feel to each of the persons you identified?

Personal ID #	Closeness to contact				
	Especially close	Somewhat close	Not at all close	Refused	Don't know
ID # _____					
ID # _____					

ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					

4. From time to time, people discuss important matters with other people they trust. Important matters include work, politics, and family. Which of these important matters have you discussed with each person identified above during the last six months? Please check all that apply.

Personal ID #	Important matters discussed in the last six months				
	Work	Family	Politics	Refused	Don't know
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					

5. How valuable do you think each person is for advancing your career in this company?

Personal ID #	Valuable person to know				
	Especially valuable	Somewhat valuable	Not at all valuable	Refused	Don't know
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					
ID # _____					

Section IV

.Directions: Thank you for your patience. You are now at the final section of the survey. The questions in this section pertain to your work in project teams. The first question asks about project teams you have worked on in the past, and the second question asks about project teams you are currently working on. If you have not worked on any project teams, you may skip this section.

1. Below is a list of projects completed within the last two years. Please check the box for each projects you have worked on, then list your role/position on each project.

Project name	Role on project team					
	Project leader	Technical expert	Subject expert	Project sponsor	Refused	Don't know

2. Below is a list of projects ongoing projects. Please check the box for each projects you are currently working on, then list your role/position on each project..

Project name	Role on project team					
	Project leader	Technical expert	Subject expert	Project sponsor	Refused	Don't know

You have reached the end of the survey. Thank you for your participation. Your information will be held in the strictest confidence.[9]

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[9] Questions on this survey have been adapted from General Social Survey (GSS), Ronald Burt social networks survey, Mueller and Price (1992) clergy satisfaction survey.

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